

CAREER & TECHNOLOGY STUDIES

INFORMATION PROCESSING

GUIDE TO STANDARDS AND IMPLEMENTATION

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<i>Parents</i>	
<i>Students</i>	
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Program/Level: Career and Technology Studies/Secondary

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NOTE: Shaded areas within this document have been approved for optional implementation. Assessment conditions and criteria are in draft form and will be validated 1994–97.

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TABLE OF CONTENTS

	Page
Career and Technology Studies	
Program Philosophy/Rationale	A.1
General Learner Expectations	A.3
Program Organization	A.5
Curriculum Structure	A.5
Levels of Achievement	A.6
Types of Competencies	A.6
Curriculum and Assessment Standards	A.7
Curriculum Standards	A.7
Assessment Standards	A.7
Fashion Studies	
Strand Rationale	B.1
Strand Organization	B.3
Themes	B.4
Integrating Concepts	B.4
Learning Concepts	B.4
Scope and Sequence	B.5
Module Descriptions	B.6
Planning for Instruction	
Planning for CTS	C.1
Planning for Information Processing	C.2
Module Curriculum and Assessment Standards: Introductory Level	D.1
Module Curriculum and Assessment Standards: Intermediate Level	E.1
Module Curriculum and Assessment Standards: Advanced Level	F.1
Assessment Tools	G.1
Linkages/Transitions	H.1
With Other CTS Strands	H.1
With Other Secondary Programs	H.2
To the Workplace	H.2
To Related Post-secondary Programs	H.2
Learning Resource Guide	I.1
Sample Student Learning Guides	J.1
Acknowledgements	K.1

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CAREER AND TECHNOLOGY STUDIES

PROGRAM PHILOSOPHY/RATIONALE

Through Career and Technology Studies (CTS), secondary education in Alberta is responding to the many challenges of modern society, helping young people develop daily living skills, and nurturing a flexible, well-qualified work force.

In Canada's information society, characterized by rapid change in the social and economic environment, students must be confident in their ability to respond to change and successfully meet the challenges they face in their own personal and work lives. In particular, they must make decisions about what they will do when they finish high school. Many students will enter the work force, others will continue their education. All students face the challenges of growing independence and responsibility, and of entering the highly competitive workplace and/or post-secondary programs.

Secondary schools also face challenges. They must deliver, on a consistent basis, high quality, cost-effective programs that students, parents and community find credible and relevant.

CTS helps schools and students meet these challenges. Schools can respond more efficiently and effectively to student and community needs and expectations by using the opportunities in the CTS curriculum to design courses and access school, community and distance learning resources. Students can develop the confidence they need as they move into adult roles by assuming increased responsibility for their learning; cultivating their individual talents,

interests and abilities; and defining and acting on their goals.

As an important component of basic education in Alberta secondary schools, CTS promotes students' achievement by setting clear expectations and recognizing students' success. Students in CTS develop competencies—that is, the knowledge, skills and attitudes students must demonstrate, or what they know and can do.

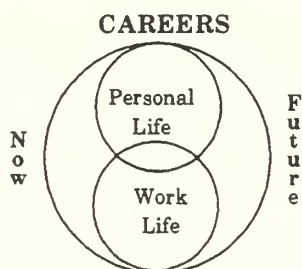
These competencies can be applied now and in the future as students make a smooth transition into adult roles in the family, community, workplace and/or further education. To help ensure this transition for students, clearly stated expectations and standards have been defined with the assistance of teachers, business and industry representatives and post-secondary educators.

CTS offers *all* students important learning opportunities. Regardless of the particular area of study chosen, students in CTS will:

- develop skills that they can apply in their daily lives now and in the future
- refine career-planning skills
- develop technology-related skills
- enhance employability skills
- apply and reinforce learnings developed in other subject areas.

In CTS, students build skills they can apply in their everyday lives. For example, in the CTS program, particularly at the introductory levels, students have the opportunity to improve their ability to make sound consumer decisions, and to appreciate environmental and safety precautions.

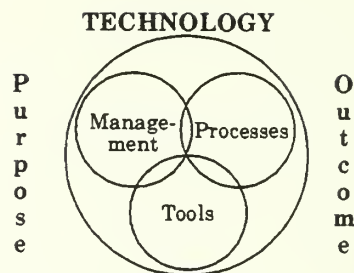
A career encompasses more than activities related to a person's job or occupation; it involves one's personal life in both local and global contexts; e.g., as a family member, a friend, a community volunteer, a citizen.



The integration of careers throughout the CTS program helps students make effective career decisions and target their efforts. Students in CTS will have the opportunity to expand their knowledge about careers, occupations and job opportunities and the education and/or training requirements involved. As well, they will recognize the need for lifelong learning.

Students in CTS will have the opportunity to use and apply technology and systems effectively and efficiently, which involves:

- a decision regarding which processes and procedures best suit the task at hand
- the appropriate selection and skilled use of the tools or resources that are available
- an assessment of and management of the impact the use of the technology may have on themselves, on others and on the environment.



Integrated throughout CTS are employability skills, those basic competencies that help students develop their personal management and social skills. Personal management skills are improved as students take increased responsibility for their learning, design innovative solutions to problems or challenges, and manage resources effectively and efficiently. Students' social skills improve through learning experiences that require them to work effectively with others, demonstrate teamwork and leadership, and maintain high standards in safety and accountability.

Further enhancing the employability skills, CTS reinforces and enhances learnings developed in core and other complementary courses. The curriculum emphasizes, as appropriate, the effective application of communication and numeracy skills.

Finally, in addition to the common outcomes described above, those students who focus on a particular area of study will develop career-specific competencies that support entry into the workplace and/or related post-secondary programs. Career-specific competencies can involve understanding and applying appropriate terminology, processes and technologies related to a specific career, occupation or job.

GENERAL LEARNER EXPECTATIONS

General learner expectations describe the basic competencies that are integrated throughout the CTS program.

Within an applied context that is relevant to personal goals, aptitudes and abilities, the student in Career and Technology Studies will:

- demonstrate the basic knowledge, skills and attitudes necessary for achievement and fulfillment in personal life
- develop an action plan that relates personal interests, abilities and aptitudes to career opportunities and requirements
- use technology effectively, linking and applying available tools, management and processes to produce a desired outcome
- develop personal management skills by:
 - linking theory and practice, using resources, tools, technology and processes responsibly and efficiently (managing learning)
 - applying effective and innovative decision-making and problem-solving strategies in the design, production, marketing and consumption of goods and services (being innovative)
 - selecting relevant, goal-related activities, ranking them in order of importance, allocating necessary time, and preparing and following schedules (managing resources)
- improve social interaction skills by:
 - demonstrating flexibility and cooperative work and communication behaviors (working with others)
 - participating as a team member by working cooperatively with others and contributing to the group with ideas, suggestions and effort (teamwork and leadership)
 - demonstrating high standards of diligence, attendance and punctuality, following safe procedures consistently, and recognizing and eliminating potential hazards (demonstrating responsibility)
- demonstrate appropriate verbal, written, composition, summarization and presentation skills
- use basic computation and measurement principles accurately and efficiently.

PROGRAM ORGANIZATION

CURRICULUM STRUCTURE

Career and Technology Studies is organized into *strands* and *modules*.

Strands in CTS define competencies that help students:

- build daily living skills
- investigate career options
- use technology (managing, processes, tools) effectively and efficiently
- prepare for entry into the workplace and/or related post-secondary programs.

In general, strands relate to selected industry sectors that offer positive occupational opportunities for students. Some occupational opportunities require further education after high school, and some allow direct entry into the workplace. The industry sectors encompass both goods-producing industries, such as agriculture, manufacturing and construction, and service-producing industries, such as business services, health services, and finance and insurance services.

Modules are the building blocks for each strand. They define what a student is expected to know and be able to do (exit-level *competencies*). Modules also specify prerequisites and facility and instructional parameters, where necessary.

The competencies a student must demonstrate to achieve success in a module are defined through the *module learner expectations*. Senior high school students who can demonstrate the module learner expectations (i.e., have the designated competencies) will qualify for one credit towards their high school diploma.

Module learner expectations are a culmination of the *specific learner expectations*, which provide a more detailed framework for instruction. They define the scope and depth of knowledge, skills and attitudes the student should acquire.

The following chart shows the 21 strands that comprise the CTS program and the number of modules available in each strand.

Strand	No. of Modules
1. Agriculture	31
2. Career Transitions	13
3. Communication Technology	32
4. <i>Community Health</i>	25*
5. Construction Technologies	46
6. <i>Cosmetology</i>	64*
7. Design Studies	31
8. <i>Electro-Technologies</i>	33*
9. <i>Energy and Mines</i>	27*
10. Enterprise and Innovation	8
11. <i>Fabrication Studies</i>	39*
12. <i>Fashion Studies</i>	37*
13. Financial Management	15
14. Foods	37
15. Forestry	21
16. Information Processing	43
17. Legal Studies	13
18. <i>Management and Marketing</i>	26*
19. <i>Mechanics</i>	49*
20. Tourism Studies	24
21. Wildlife	17

*Estimate

Note: As of September 1994, 13 of the 21 strands are available for optional implementation in Alberta junior and high schools. The remaining strands, indicated above in italics, will be phased in from September 1995 to September 1996. Provincial implementation of all strands is scheduled for September 1997.

LEVELS OF ACHIEVEMENT

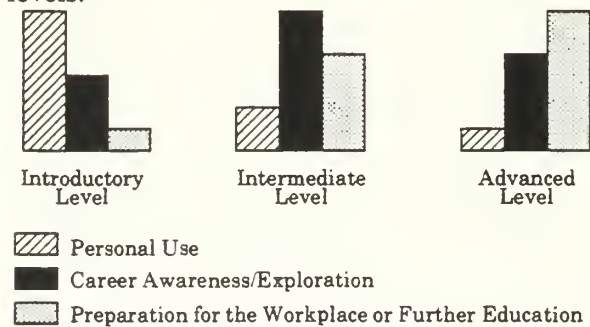
Modules are organized into three levels of achievement: introductory, intermediate and advanced. As students progress through the levels, they will be expected to meet higher standards and demonstrate increased degree of competence, both in the general learner expectations and the module learner expectations.

Introductory level modules help students build daily living skills and form the basis for further learning. Introductory modules are developed for students who have no previous experience in the strand.

Intermediate level modules build on the competencies developed at the introductory level. They provide a broader perspective, helping students recognize the wide range of related career opportunities available within the strand.

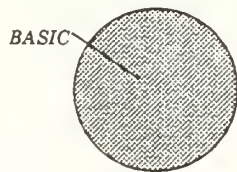
Advanced level modules demand a higher level of expertise and help prepare students for entry into the workplace or a related post-secondary program.

The following illustrates the relative emphasis on the aspects of career planning at each of the levels.



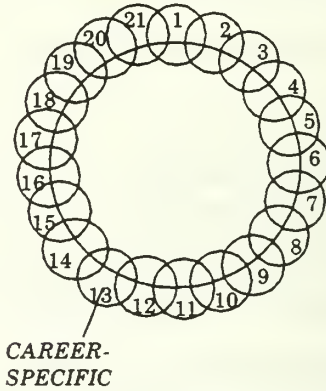
TYPES OF COMPETENCE

Two types of competence are defined within the CTS program: basic and career-specific.



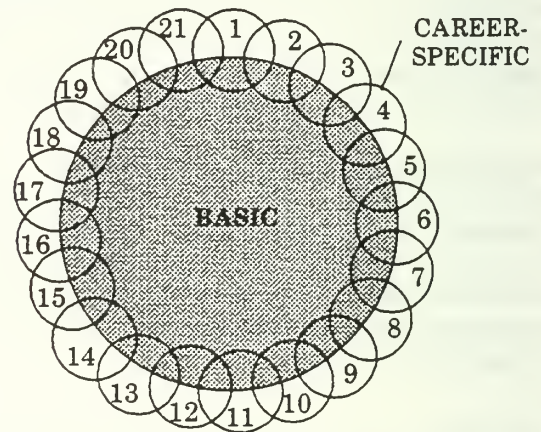
Basic Competencies are generic to any career area and are developed within each module. Basic competencies include:

- personal management; e.g., managing learning, being innovative, ethics, managing resources
- social; e.g., communication, teamwork, leadership and service, and demonstrating responsibility (safety and accountability).



Career-specific Competencies relate to a particular strand. These competencies build daily living skills at the introductory levels and support the smooth transition to the workplace and/or post-secondary programs at the intermediate and advanced levels.

The following model shows the relationship of these two types of competencies within the 21 strands of CTS (numbers refer to the chart on page A.5):



CURRICULUM AND ASSESSMENT STANDARDS

CURRICULUM STANDARDS

Curriculum standards in CTS define what students must know and be able to do. Curriculum standards are expressed through general learner expectations for CTS, and through module and specific learner expectations for each strand.

ASSESSMENT STANDARDS

Assessment standards define how the student's performance will be judged. In CTS, each assessment standard defines the conditions and criteria to be used for assessing the competencies defined in each module learner expectation. Students must fully meet each assessment standard, including all of the criteria and conditions defined for the module. Assessment standards are in draft form, as are tools and weightings, and will be validated 1994–97.

Teachers throughout the province will be able to ensure students receive a fair and reliable assessment. Students will use the assessment standards to guide their efforts, ensuring they participate more effectively and successfully in the learning and assessment process. Standards at advanced levels are as much as possible linked to workplace and post-secondary entry-level requirements.

The following pages describe the Information Processing strand in the Career and Technology Studies program.

INFORMATION PROCESSING

STRAND RATIONALE

Information Processing represents the study of electronic technologies as they apply to personal use and the business environment.

As we move more rapidly into the information age, it is crucial that students are able to use electronic technologies to access and manipulate information in an efficient manner. Accurate, timely information is the basis for sound decision making and effective communication.

As students build confidence in their understanding of the various information processing tools and processes, they will be able to transfer their knowledge and skill to a wide range of contexts, and will be better able to adapt to the continual changes caused by the evolving technologies.

To understand the shift from the *industrial society* towards the *information age*, it is important that a student understands the significance of the current technological development and how technology affects an individual's daily life as well as the impact it has on the world of work. Within this perspective Information Processing provides for the development of:

- a meaningful study of technological trends
- an understanding of the stems that relate in whole or in part, to the management of information

- an understanding of the ethical and societal issues concerning technological development and its impact on society
- technological skills and knowledge designed for personal use
- technological skills and knowledge that transfer to other curriculum areas
- technological skills and knowledge required for the world of work.

Students will learn to input, process and output information in the following areas:

- text/data input
- productivity software
- applied processing
- dynamic environment
- programming (procedure-oriented and object-oriented).

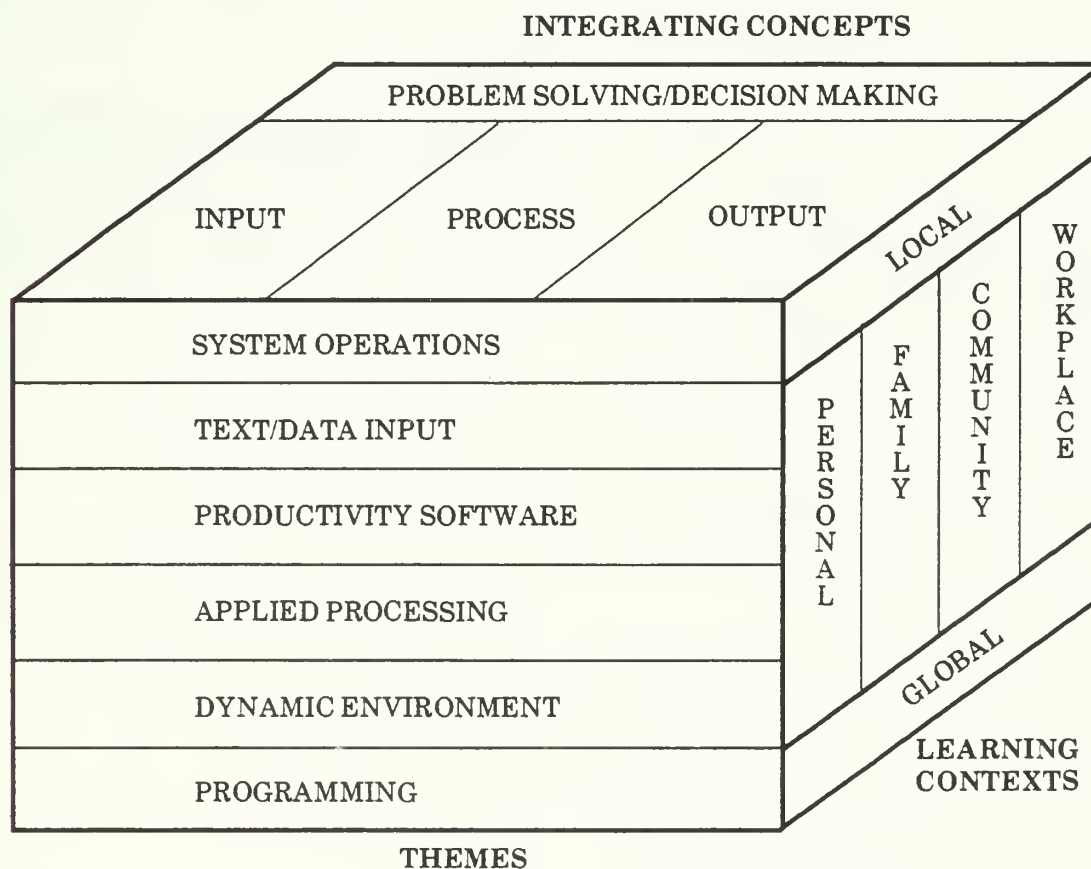
STRAND ORGANIZATION

The Information Processing strand is organized in 43 modules, eight at the introductory level, 18 at the intermediate level and 17 at the advanced level. One module, Computer Operations, is prerequisite to all other modules in this strand and incorporates basic keyboarding techniques and computer use functions.

Students working on modules at the introductory level develop basic techniques and skills which, while primarily for personal use, also form the foundation for the development of more professional applications. In the intermediate level modules, students are expected to work more independently and expand and refine basic skills in a wide range of applications. At the

advanced level, students use initiative to efficiently integrate applications and processes to produce high quality work to workplace standards.

The following developmental module indicates the relationship of what the students learn (as described in the themes), how these learnings are emphasized within the modules (as described in the integrating concepts) and how students will apply these learnings (as described in the learning contexts).



THEMES

The themes provide learning experiences that link knowledge, skills and attitudes with real-life situations. Modules are organized into six themes:

- System Operations
- Text/Data Input
- Productivity Software
- Applied Processing
- Dynamic Environments
- Programming.

The modules in the System Operations theme help students efficiently use and assess computer hardware and related software and peripherals, and understand and apply various communication protocols.

In the Text/Data Input themes students develop efficient keyboarding competencies from personal use to professional levels of skill.

In Productivity Software modules students learn the commands and processes of the key productivity software packages used in personal and professional applications, including word processing, spreadsheet, database, graphics and electronic/desktop publishing. Students expand their ability use these software applications in other CTS strands such as Communication Technology or other courses such as English, mathematics, etc.

The Applied Processing theme is designed to increase students' level of productivity as they produce a variety of documents that integrate text, data and graphics applications.

In the Dynamic Environment theme students work with software that links various media and processes in new and unique ways to manage and communicate information.

The Programming theme provides an opportunity for students to develop high-level, structured programming skills, using either procedure-oriented or object-oriented processes.

INTEGRATING CONCEPTS

Integrated within each of the Information Processing modules is the expectation that students will identify and resolve problems efficiently by using effective decision-making skills. Students apply these problem-solving/decision-making skills as they determine the most effective and efficient processes to use to input, process and output information.

LEARNING CONTEXTS

The Learning Contexts help students relate their learning to real life experiences and challenges. In modules at the introductory level, these challenges are most frequently in a context typical in daily living—within the home, school or community. As the student progresses through the intermediate and advanced levels, the challenges and related expectations for performance involve contexts that relate to the workplace.

With the ever-increasing power of information technologies, all of these applications can be applied both at the local or global level. The competencies students develop in Information Processing will also support students as they continue their education in post-secondary or other further education opportunities.

SCOPE AND SEQUENCE

INFORMATION PROCESSING

INTRODUCTORY	INTERMEDIATE	ADVANCED	THEME
Computer Operations ★	Workstation Operations Electronic Bulletin Board Systems	Hardware/Software Analysis Local Area Network	System Operations
Keyboarding I	Keyboarding II Keyboarding III	Keyboarding IV Keyboarding V Keyboarding VI	Text/Data Input
Word Processing I Graphics Tools Database I Spreadsheet I	Word Processing II Electronic Publishing I Database II Spreadsheet II	Word Processing III Electronic Publishing II Information Management Tools	Productivity Software
	Correspondence Reports Tables/Forms Document Production I	Word Processing Applications Specialization I Specialization II Document Production II	Applied Processing
Hypermedia Tools	Multimedia Authoring I Process Control	Multimedia Authoring II Expert Systems	Dynamic Environment
Programming I	Programming II Programming III Programming IV Programming V	Programming Application I Programming Application II Programming Application III	Programming

— Prerequisite

★ Prerequisite to all modules in this strand.

MODULE DESCRIPTIONS

Module INF101: Computer Operations

Computer Operations is pre/corequisite to all modules in the Information Processing strand and develops personal use skill in the following applications: file management, basic hardware and software operations, text entry and workstation routines.

Module INF102: Keyboarding I

This module provides an opportunity for students to develop accurate touch-keystroking of text and data appropriate for personal use and the application of efficient workstation procedures.

Module INF103: Word Processing I

This module provides an opportunity for students to develop skill in using basic commands and functions in word-processing software, including document editing, formatting and printing of reports, correspondence, and tables suitable for personal use applications.

Module INF104: Graphics Tools

Students learn to the basic commands and functions of computer graphing software, including bitmapped graphics (paint program), vector graphics (draw program) and presentation graphics. Students develop basic skills in manipulating pre-made graphics as well as producing their own graphics.

Module INF105: Database I

Students are introduced to the basic commands and functions of software and demonstrate how database software can be used as a personal tool in data and information management.

Module INF106: Spreadsheet I

Students have an opportunity to use basic functions and commands in spreadsheet software for general data manipulation and personal record keeping

Module INF107: Hypermedia Tools

Students develop basic skills with tools used for computerized presentations involving text, data, graphics, sounds and animation.

Module INF108: Programming I

Students are introduced to computer programming languages and a structured programming environment and will construct algorithms and code instructions to solve identified problems.

Module INF201: Workstation Operations

Students learn computer workstation operations including computer architecture, peripherals, configurations, operating system environments and platforms, utility software, diagnostic and protection software, hard drive file updating and maintenance, support resource application, and trouble shooting activities.

Module INF202: Electronic Bulletin Board Systems

This module provides an opportunity for students to learn to operate and maintain an EBB system(s), including proper use of hardware, software, peripherals, interface protocols, telecommunication equipment, data transmission characteristics and messaging parameters.

Module INF203: Keyboarding II

This module enhances the students' personal use keyboarding competencies by increasing the rate of accurate touch-keystroking of the alphabet and numbers and selected punctuation keys.

Module INF204: Keyboarding III

This module enhances the students' keyboarding competencies by increasing the rate of accurate touch-keystroking of alphabetic, numeric and all punctuation keys to support personal use and limited entry-level workplace opportunities.

Module INF205: Word Processing II

Students expand their skills in using word-processing software commands and functions to produce mailable reports, correspondence (including letters and memos) and tables from rough draft copy.

Module INF206: Electronic Publishing I

This module provides an opportunity for students to develop skill using electronic/desktop publishing software to create a variety of camera-ready documents.

Module INF207: Database II

Students use all the commands and functions of electronic database software that support effective and efficient database applications.

Module INF208: Spreadsheet II

Students demonstrate advanced level spreadsheet commands and functions to calculate and manipulate data and prepare appropriate printouts and reports in text and graphic format.

Module INF209: Correspondence

Students expand their rate of document production as they prepare various forms of correspondence in mailable form, using word-processing software.

Module INF210: Reports

Students expand their rate of production as they prepare various reports and manuscripts in mailable form.

Module INF211: Tables/Forms

Students expand their rate of document production as they prepare various tables/forms in mailable form.

Module INF212: Document Production I

This module provides an opportunity for students to develop document production skills requiring the integration of data, text and graphics.

Module INF213: Multimedia Authoring I

This module introduces multimedia software and an opportunity to develop basic authoring competence by accessing and integrating software resident text, video, audio clips.

Module INF214: Process Control

Students develop skills in robotics/simulation software control by creating/modifying/using programs that incorporate computer-controlled movements/events in robotics/simulation activities/applications.

Module INF215: Programming II

Students have an opportunity to increase programming skills by designing and generating programming code to handle decision-making and repetitive processes.

Module INF216: Programming III

Students have an opportunity to increase programming skills by using sub-program structures.

Module INF217: Programming IV

Students have an opportunity to increase programming skills by developing and using derived data types.

Module INF218: Programming V

Students have an opportunity to increase programming skills by developing and using recursive, sorting and merging algorithms.

Module INF301: Hardware/Software Analysis

This module provides an opportunity for students to analyze, compare and evaluate hardware/software on the basis of user requirements.

Module INF302: Local Area Networks

Students learn about local area network (LAN) computer systems, including hardware and peripheral configurations, interface protocols and data transmission characteristics.

Module INF303: Keyboarding IV

This module develops the students' keyboarding skill of text and data to entry-level occupational expectations.

Module INF304: Keyboarding V

This module increases occupational-level keyboarding competence involving text, data and function/service keys from straight copy and edited material.

Module INF305: Keyboarding VI

This module enhances occupational-level keyboarding competence involving all keystroke functions from unedited, edited and straight copy material.

Module INF306: Wordprocessing III

This module provides an opportunity for students to develop occupational-level competence in the use of word-processing software commands and functions to produce mailable reports, correspondence, and tables including the importing and merging of text, data and graphics.

Module INF307: Electronic Publishing II

Students use the functions and commands of electronic/desktop publishing software as they integrate text composing, editing, typesetting, graphic generation and page layout functions to create customized, professional-quality documents.

Module INF308: Information Management Tools

This module is designed to develop students' competence in using a variety of information management system software such as project management, schedules and planners for either personal or workplace applications.

Module INF309: Word-Processing Applications

This module develops high rates of production as students produce documents using numerous functions/commands for create, revise, format and print a wide range of documents in mailable form.

Module INF310: Specialization I

This module provides an opportunity to specialize in document preparation, terminology application, and associated office routine expectations in a specific focus area such as a medical, legal, petroleum, real estate, insurance, travel/tourism, forestry or agricultural environment.

Module INF311: Specialization II

This module provides an opportunity to develop workplace competence in a specific focus area such as medical, legal, petroleum, real estate, insurance, travel/tourism, forestry, or agricultural environment by creating/completing appropriate documents, employing specialized communication skills and conforming to identified workplace expectations under identified time constraints.

Module INF312: Document Production II

This module provides an opportunity for students to expand their document production skills to workplace standards. Documents could require the importing and integration of word-processing, spreadsheet, graphics and database files.

Module INF313: Multimedia Authoring II

This module provides an opportunity to learn to use a multimedia file/media authoring software based on and digitized input of text, video and audio clips.

Module INF314: Expert Systems

Students develop an introductory knowledge of expert systems such as artificial intelligence and virtual reality. They will gain competence by developing/modifying programs that incorporate computer-controlled environments and multimedia interactive activities and applications.

Module INF315: Programming Application I

Students create programs that use external files.

Module INF316: Programming Application II

Students create a program using a second programming language.

Module INF317: Programming Application III

Students enhance a program using a second programming language.

PLANNING FOR INSTRUCTION

CTS provides increased opportunity for junior and senior high schools to design courses based on the needs and interests of their students and the circumstances within the school and community. Some strands may be appropriately introduced at the junior high school level. Other strands are more appropriately introduced at the senior high school level or to Grade 9 students. Refer to page C.3 of this Guide for recommendations regarding the Information Processing strand, or the *CTS Manual for Administrators, Counsellors and Teachers* for a summary of the recommended grade levels for each strand.

PLANNING FOR CTS

Defining Courses

Schools determine which strands and modules will be offered in a particular school, and will combine modules into courses.

Each module was designed for approximately 17 to 25 hours of instruction. However, this time frame is only a guideline to facilitate planning. The CTS curricula are competency based, and the student may take more or less time to gain the designated competencies within each module.

A course will usually consist of modules primarily from the same strand but, where appropriate, may include modules from two or more strands. Refer to the *CTS Manual for Administrators, Counsellors and Teachers* for more information on course names and course codes.

Module selection and sequencing must consider the module parameters, which define:

- prerequisite and corequisites (entry-level competencies)
- instructional qualifications, if specialized
- equipment and facility requirements, if specialized.

The module parameters are defined for each module in Sections D, E and F of this Guide.

Degree of Flexibility

The CTS program, while designed using the modular structure to facilitate flexible time-tabling and instructional delivery, does not mandate the degree of flexibility a school or teacher will offer. The teacher and school will determine the degree of flexibility available to the student. Within the instructional plan established by the school, the student may:

- be given the opportunity to progress at a rate that is personally challenging
- have increased opportunity to select modules that develop competencies he or she finds most relevant.

Integrating Basic Competencies

Basic competencies are also developed throughout the CTS program and within each module. Selected basic competencies will be emphasized within a module, depending on the nature of the career-specific competencies defined for the module.

Refer to the Assessment Tools section of this Guide for the description of student behaviours expected at each of the three developmental levels defined for the basic competencies.

Assessment of basic competencies could include input and reflection from the student, teacher, peers and workplace supervisors. Description of the observed behaviour could be provided through a competency profile for the module. Positive, ongoing interaction between the student and teacher will support motivation for student growth and improvement.

The basic competencies related to teamwork, leadership and service should be emphasized in Information Processing modules at the advanced level where group activities and projects would be appropriate.

No mark would be assigned to the student's performance in the designated basic competencies, although a description of the level of performance should be included within the assessment of each module.

Assessing Student Achievement

Assessing the student's competency is a process of gathering information by way of observations of process, product and student interaction.

Where appropriate, assessment tools have been defined to assist the teacher and student in the assessment. Refer to the Assessment Tools section of this Guide to Standards and Implementation for copies of the various tools (worksheets, checklists, sample questions, etc.).

The relative weighting, or emphasis, for each assessment standard has also been established. The weighting is a guideline to help teachers determine a percentage grade for students.

Recognizing Student Achievement

At the high school level, successful demonstration of the exit-level competencies in a module qualifies the student for one credit. Refer to Section A of this Guide for more detailed information about how curriculum and assessment standards are defined in CTS. Refer to the *CTS Manual for Administrators, Counsellors and Teachers* for more information on how student achievement can be recognized and reported at the school and provincial levels.

Resources

A comprehensive resource base, including print, software and audio-visual, has been identified to support the Information Processing strand. It is intended that these resources will form the basis of a resource centre, encouraging teachers and students to access a wide selection of resources and other information sources throughout the learning process. Unless otherwise noted, these resources are considered to be suitable for both junior and senior high school students.

Authorized resources may be obtained from the Learning Resources Distributing Centre or directly from the publisher or distributor. Refer to the Learning Resources section of this Guide for the complete resource list including

curriculum correlations and resource annotations. Additional sources refer to non-commercial or government agencies that offer resources that may be of assistance in this strand.

In addition to the resources, sample Student Learning Guides will be available. These samples, designed for individual student or small group use, provide an instructional plan for selected modules and include the following components:

- Why take this module?
- What are the entry-level competencies?
- What are the exit-level competencies?
- What resources may be accessed?
- What assignments/activities must be completed?
- What are the time lines?
- How will the final mark be calculated?

Sample Student Learning Guides for Information Processing are in draft form and will be validated and expanded over the 1994-95 and 1995-96 school years.

Copies of these sample learning guides will be available, by request, from the CTS Unit in print and/or disk format (Microsoft Word).

PLANNING FOR INFORMATION PROCESSING

The following suggestions are provided to assist teachers and school and school system administrators as they plan to deliver modules from the Information Processing strand.

Selecting Modules

The scope and sequence chart, page B.5, provides an overview of the Information Processing modules, indicating prerequisites and theme areas. Brief descriptions of the modules are on pages B.6 to B.8.

Information Processing for Junior High School Students

The introductory level modules may be offered at junior high. Because many students entering junior high school may be familiar with computers, it is important to determine the level of competence students have in relation to the competencies defined for the modules.

The number of modules will vary according to the time available throughout Grades 7, 8, and 9:

Time Available	Modules
25 hours	Computer Operations
50 hours	Computer Operations Word Processing I
75-100 hours	add one of the following: Graphic Tools Database I Spreadsheet I Hypermedia Tools Programming I

Where appropriate, junior high school students may also take intermediate level modules, particularly in the Text/Data Input and Productivity Software themes.

Modules may be combined into courses and offered within a school year or over a span of a few years.

Information Processing for Senior High School Students

Following are a few examples of module groupings into sample courses:

5 credits (no previous experience)	Computer Operations Keyboarding I Word Processing I Database I Spreadsheet I
3 credits (strong background from junior high school or through personal experience)	Keyboarding I Database I Spreadsheet I
5-15 credits (foundation for entry into workplace as computer technician)	Computer Operations Keyboarding I Word Processing I Database I Spreadsheet I and modules selected from System Operations theme and Programming theme
5-15 credits (foundation for entry into workplace into administrative support positions)	Computer Operations Keyboarding I Word Processing I Database I Spreadsheet I and modules selected from the Productivity Software and Applied Processing themes

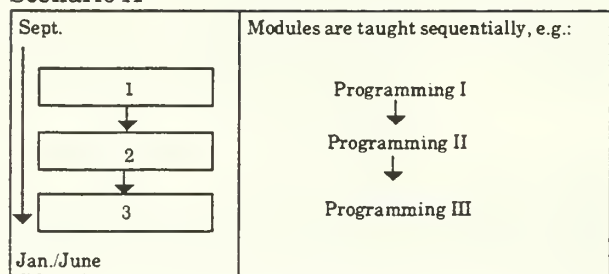
Modules could also be grouped into comprehensive courses that emphasize a particular theme.

Organizing for Learning

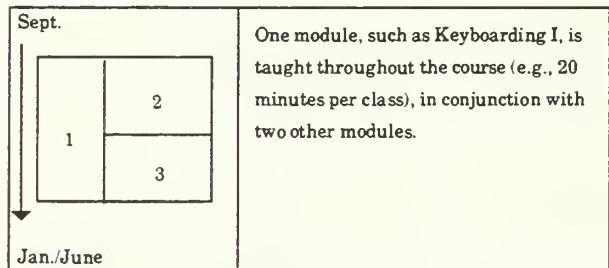
Prior to selecting modules, teachers should check the module parameters outlined in each module (see Sections D, E and F of this guide). These module parameters describe prerequisite or corequisite modules and *recommended* prerequisite or corequisite modules. The module parameters also indicate basic hardware and software requirements.

Modules can be delivered sequentially, concurrently or combined. For example, although the modules from the Text/Data Input theme and the Programming theme are sequential, they can be combined with modules from the System Operations theme, the Productivity Software theme, or the Applied Processing theme; e.g.:

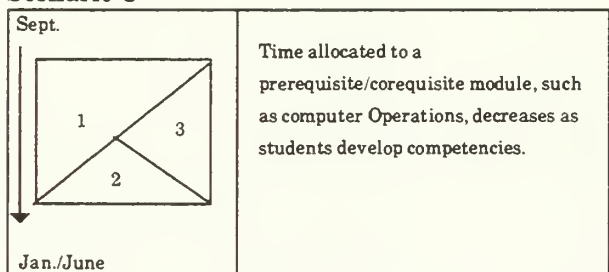
Scenario A



Scenario B

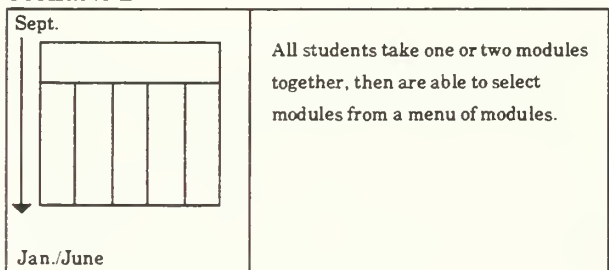


Scenario C

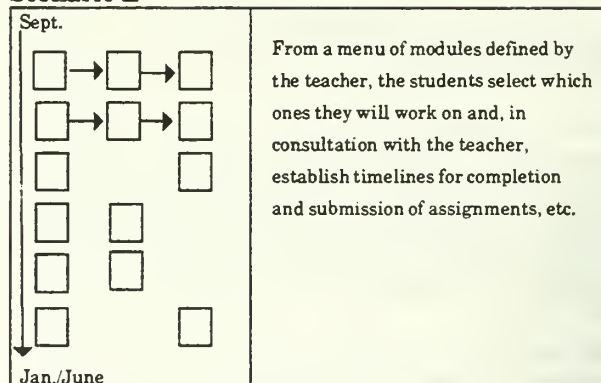


Teachers can also allow students to progress at a rate that is personally challenging; e.g.:

Scenario D



Scenario E



Identifying Linkages

Section H of this Guide describes some of the linkages that are possible within the Information Processing strand and:

- other CTS strands
- junior and senior high school Math and Science programs.

Additional linkages with language arts and social studies and complementary programs are being defined.

Improving Smooth Transition to the Workplace and/or Related Post-secondary Programs

Refer to Section H of this Guide for potential transitions students may make:

- into the workplace
- into related post-secondary programs or other avenues for further learning.

Recurring Concept—Workstation Management

Each module in Information Processing requires students to consistently apply appropriate workstation routines. This requires students to demonstrate responsibility and professionalism throughout the instruction period as they:

- manage and use the workstation and related resources
- make efficient and effective use of their own and others' time
- learn in as independent a manner as possible
- use related terminology appropriately, both verbally and in print.

A weighting of 10 per cent has been allocated in each module for workstation management.

MODULE CURRICULUM AND ASSESSMENT STANDARDS

INTRODUCTORY LEVEL

The following pages define the curriculum and assessment standards for the introductory level of Information Processing.

Introductory level modules help students build daily living skills and form the basis for further learning. Introductory modules are developed for students who have no previous experience in the strand.

Module learner expectations define the competencies a student must demonstrate to achieve success in a module. Assessment standards define the conditions and criteria to be used for assessing the competencies defined in the module learner expectations. These assessment standards and the accompanying assessment tools are in draft form and will be validated from 1994 to 1996.

Specific learner expectations provide a detailed framework for instruction and help students build the competencies defined in the module learner expectations. Additional information and suggestions for instruction are provided in the Notes column; teachers may wish to use this space to record their ideas for instruction or student projects.

Module INF101:	Computer Operations	D.3
Module INF102:	Keyboarding I	D.7
Module INF103:	Word Processing I	D.11
Module INF104:	Graphics Tools	D.15
Module INF105:	Database I	D.19
Module INF106:	Spreadsheet I	D.23
Module INF107:	Hypermedia Tools	D.27
Module INF108:	Programming I	D.31

MODULE INF101: COMPUTER OPERATIONS

Level: Introductory

Theme: Systems Operations

Prerequisite: None

Module Parameters: Computer workstation, disk, word-processing software, support resources

Computer Operations is pre/corequisite to all modules in the Information Processing strand and develops personal use skill in the following applications: file management, basic hardware and software operations, text entry and workstation routines.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<i>The student will:</i> <ul style="list-style-type: none">● demonstrate basic file management skills	<i>Student achievement will be based on:</i> <ul style="list-style-type: none">● demonstrate effective and efficient management techniques. <i>Assessment Tool</i> <i>Assessment Checklist A: File Management Procedures (INF101-1)</i> <i>Standard</i> <i>All procedures must be demonstrated</i>	10
<ul style="list-style-type: none">● enter text and data using proper touch keyboarding technique	<ul style="list-style-type: none">● demonstrate touch keyboarding technique. <i>Assessment Tool</i> <i>Assessment Checklist B: Text-Data Entry (INF101-1)</i> <i>Standard</i> <i>All procedures must be demonstrated</i>	50
<ul style="list-style-type: none">● identify components of a computer workstation and basic functions of a computer	<ul style="list-style-type: none">● identify and explain use of computer workstation components. <i>Assessment Tool</i> <i>Assessment Checklist C: Computer Workstation Components (INF101-1)</i> <i>Standard</i> <i>All procedures must be demonstrated</i>	10

MODULE INF101: COMPUTER OPERATIONS (continued)

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> describe one or more recent initiatives or issues in technological development 	<p><i>Assessment of student achievement will be based on:</i></p> <ul style="list-style-type: none"> preparation of a report (print, or multi-media). The report will provide a clear and concise description of: <ul style="list-style-type: none"> current or emerging technological initiative or issue actual or potential impact on individual and society list of sources of information. <p><i>Assessment Tool</i> <i>Assessment Guide: Presentations and Reports (INF101-2)</i></p> <p><i>Standard</i> <i>Rating of 1 on each component</i></p>	20
<ul style="list-style-type: none"> consistently apply appropriate workstation routines 	<ul style="list-style-type: none"> demonstrate appropriate workstation routines. <p><i>Assessment Tool</i> <i>Assessment Checklist: Workstation Routines and Management (INFWRKSTN)</i></p> <p><i>Standard</i> <i>Rating of:</i> 1 - Workstation Use 2 - File Management 1 - Time Management/Organization 2 - Professionalism</p>	10
<ul style="list-style-type: none"> demonstrate effort to develop basic competencies. 	<ul style="list-style-type: none"> observations of individual effort and interpersonal interaction during the instructional period, emphasizing: <ul style="list-style-type: none"> managing learning ethics managing resources demonstrating responsibility. <p><i>Assessment Tools</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i></p>	Integrated throughout

MODULE INF101: COMPUTER OPERATIONS (continued)

Concept	Specific Learner Expectations	Notes
File Management	<p><i>The student should:</i></p> <ul style="list-style-type: none"> ● use appropriate commands to boot/access computer system(s) <ul style="list-style-type: none"> - standalone - network ● demonstrate ability to: <ul style="list-style-type: none"> - create, name, save and close files - retrieve and open files - print file. 	
Text/Data Entry	<ul style="list-style-type: none"> ● develop "touch keyboarding" skills with alphabetic numeric, and basic punctuation keys using proper techniques characterized by: <ul style="list-style-type: none"> - correct fingering - appropriate body position - acceptable eye focus ● proofread and edit text or data as appropriate to ensure error-free documents, including: <ul style="list-style-type: none"> - manually proofread copy and compare copy with original text on: <ul style="list-style-type: none"> ● screen ● hardcopy - use software editing functions (spellcheck, grammar checks). 	<p>The emphasis is on developing touch stroking, using correct fingering. Keyboarding speed is developed in the Keyboarding modules.</p>
Workstation Components and Computer Functions	<ul style="list-style-type: none"> ● identify and describe basic computer functions, related to the workstation hardware and software that is in use, including: <ul style="list-style-type: none"> - hardware architecture, configurations and peripherals: <ul style="list-style-type: none"> ● input (keyboard, screeners, voice etc.) ● processing ● storage ● output (screen, printer) ● telecommunications - types of software: <ul style="list-style-type: none"> ● system ● application ● utility - key procedures: <ul style="list-style-type: none"> ● operating ● backup ● preventive/emergency ● use related terminology appropriately. 	

MODULE INF101: COMPUTER OPERATIONS (continued)

Concept	Specific Learner Expectations	
Initiatives and Issues in Technology	<p><i>The student should:</i></p> <ul style="list-style-type: none"> ● research one or more recent initiatives or issues that relate to computer technology ● prepare a report (verbal, print or multi-media) that: <ul style="list-style-type: none"> - provides a clear and concise descriptions of the initiative or issue - describes actual or potential impact on the individual and/or society in - lists sources of information. 	<p>Topics could relate to initiatives or issues in:</p> <ul style="list-style-type: none"> - personal life - professional life - privacy - security - ethical - computer infections (viruses, worms) - future trends.
Workstation Management	<ul style="list-style-type: none"> ● apply efficient workstation position and routines that encourage: <ul style="list-style-type: none"> - good health and safety (posture, positioning of hardware and furniture) - security for hardware, software, supplies and personal work ● demonstrate efficient and appropriate use of time and resources in terms of: <ul style="list-style-type: none"> - start-up procedures - organization of work area - closing procedures ● apply effective decision-making strategies in production assignments: <ul style="list-style-type: none"> - plan activities - organize data, information, resources - consider alternatives - evaluate activities/results ● use related terminology to describe basic processes, procedures and tools. 	

MODULE INF102: KEYBOARDING I (continued)

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> consistently apply appropriate workstation routines demonstrate effort to develop basic competencies. 	<p><i>Assessment of student achievement will be based on:</i></p> <ul style="list-style-type: none"> demonstrate appropriate workstation routines. <p><i>Assessment Tool</i> <i>Assessment Checklist: Workstation Routines and Management (INFWRKSTN)</i></p> <p><i>Standard</i> <i>Rating of:</i> 1 - Workstation Use 2 - File Management 1 - Time Management/Organization 2 - Professionalism</p> <ul style="list-style-type: none"> observations of individual effort and interpersonal interaction during the instructional period, emphasizing: <ul style="list-style-type: none"> managing learning managing resources. <p><i>Assessment Tool</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i></p>	<p>20</p> <p>Integrated throughout</p>

Concept	Specific Learner Expectations	Notes
Text Entry	<p><i>The student should:</i></p> <ul style="list-style-type: none"> demonstrate increasingly rapid, accurate touch keystroking on straight copy of: <ul style="list-style-type: none"> alphabetic keys punctuation keys (.,:;?) service keys (enter, shift, delete, backspace, tab) use function and cursor movement keys efficiently demonstrate correct keystroking technique <ul style="list-style-type: none"> enter text using designated fingers maintain home-row position demonstrate correct posture (hand, arm, body) demonstrate touch entry of numbers on number pad using correct fingering 	<p>Technique is the major focus emphasizing touch development on easy material.</p> <p>Develop speed and accuracy at the word and phrase level using short, repetitive timings (12 seconds to 1 minute) with straight copy text of varying SI. (1.0-1.3).</p> <p>Introduce only the word-processing and computer commands that are required as an instructional tool for developing keyboarding skill.</p>

MODULE INF102: KEYBOARDING I (continued)

Concept	Specific Learner Expectations	Notes
Text Entry (continued)	<p><i>The student should:</i></p> <ul style="list-style-type: none"> ● proofread and edit text while on screen to ensure text is without error ● analyze errors in keystroking and initiate remediation as appropriate for: <ul style="list-style-type: none"> – spelling, shifting, punctuation and spacing errors – transposed, repeated, omitted letters. 	
Data Entry	<ul style="list-style-type: none"> ● demonstrate rapid, accurate data entry on keyboard number pad: <ul style="list-style-type: none"> – using designated fingers – maintaining anchor position. 	
Workstation Management	<ul style="list-style-type: none"> ● apply efficient workstation position and routines that encourage: <ul style="list-style-type: none"> – good health and safety (posture, positioning of hardware and furniture) – security for hardware, software, supplies and personal work ● demonstrate efficient and appropriate use of time and resources in terms of: <ul style="list-style-type: none"> – start-up procedures – organization of work area – closing procedures ● apply effective decision-making strategies in production assignments: <ul style="list-style-type: none"> – plan activities – organize data, information, resources – consider alternatives – evaluate activities/results ● use related terminology to describe basic processes, procedures and tools. 	

MODULE INF103: WORD PROCESSING I (continued)

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> - letter with basic components 	<p><i>Assessment of student achievement will be based on:</i></p> <ul style="list-style-type: none"> • one-page letter, containing: <ul style="list-style-type: none"> - return address/letterhead - date - inside address - salutation - body - closing - signers identification. <p><i>Assessment Tool</i> <i>Assessment Checklist: Word Processing Software Functions (INFWORD)</i> <i>Assessment Checklist: Document Production Features (INFDOCPR)</i></p> <p><i>Standard</i> <i>Mailable document (no errors in text or format) level 1</i></p>	30
<ul style="list-style-type: none"> - two-column table with main and subheads 	<ul style="list-style-type: none"> - formatted two-column table with: <ul style="list-style-type: none"> • main title and subtitles • borders • column headings • formatting of cells <p><i>Assessment Tool</i> <i>Assessment Checklist: Word Processing Software Functions (INFWORD)</i> <i>Assessment Checklist: Document Production Features (INFDOCPR)</i></p> <p><i>Standard</i> <i>Mailable document (no errors in text or format) level 1</i></p>	30
<ul style="list-style-type: none"> • consistently apply appropriate workstation routines 	<ul style="list-style-type: none"> • demonstrate appropriate workstation routines. <p><i>Assessment Tool</i> <i>Assessment Checklist: Workstation Routines and Management (INFWRKSTN)</i></p> <p><i>Standard</i> <i>Rating of:</i> 1 - Workstation Use 2 - File Management 1 - Time Management/Organization 2 - Professionalism</p>	10
<ul style="list-style-type: none"> • demonstrate effort to develop basic competencies. 	<ul style="list-style-type: none"> • observations of individual effort and interpersonal interaction during the instructional period, emphasizing: <ul style="list-style-type: none"> - managing learning - managing resources. <p><i>Assessment Tool</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i></p>	Integrated throughout

MODULE INF103: WORD PROCESSING I (continued)

Concept	Specific Learner Expectations	Notes
Software Functions and Applications	<p><i>The student should:</i></p> <ul style="list-style-type: none"> ● review key features of the word-processing software package <ul style="list-style-type: none"> - capabilities - system requirements - platform options - command structure ● demonstrate appropriate key commands to <ul style="list-style-type: none"> - format text <ul style="list-style-type: none"> ● rulers/margins ● line spacing ● positioning (horizontally, vertically centred) ● tabs ● tables ● font styles/sizes ● footers/headers ● pagination - proofread, edit text <ul style="list-style-type: none"> ● move (cut and paste) ● spell check ● search and replace ● delete text - paginate text ● move through document(s) efficiently by using appropriate cursor movement tools/commands ● use help functions and references as appropriate. 	<p>Arrows, select, undo, goto.</p> <p>Spellcheck grammar check</p>

MODULE INF103: WORD PROCESSING I (continued)

Concept	Specific Learner Expectations	Notes
Document Production	<p><i>The student should:</i></p> <ul style="list-style-type: none"> ● demonstrate appropriate key commands to produce the following documents in mailable form: <ul style="list-style-type: none"> - reports <ul style="list-style-type: none"> ● headings/subheading ● references (footnotes, end notes, bibliography) ● headers/footers ● title page - personal and business letters <ul style="list-style-type: none"> ● letter parts (date, inside address, salutations, complimentary closing, name/title, references) ● letter styles - tables (single/multi-column) <ul style="list-style-type: none"> ● headings ● borders ● rulers/tabs. 	<p>Mailable form: error-free and correctly formatted.</p> <p>Use software table functions if available.</p>
Workstation Management	<ul style="list-style-type: none"> ● apply efficient workstation position and routines that encourage: <ul style="list-style-type: none"> - good health and safety (posture, positioning of hardware and furniture) - security for hardware, software, supplies and personal work ● demonstrate efficient and appropriate use of time and resources in terms of: <ul style="list-style-type: none"> - start-up procedures - organization of work area - closing procedures ● apply effective decision-making strategies in production assignments: <ul style="list-style-type: none"> - plan activities - organize data, information, resources - consider alternatives - evaluate activities/results ● use related terminology to describe basic processes, procedures and tools. 	

MODULE INF104: GRAPHICS TOOLS**Level: Introductory****Theme: Productivity Software****Prerequisite: Computer Operations****Corequisite: Workstation Operations (recommended)****Module Parameters: Computer workstation, disk, a selection of graphing software, support resources**

Students learn to the basic commands and functions of computer graphing software, including bitmapped graphics (paint program), vector graphics (draw program) and presentation graphics. Students develop basic skills in manipulating pre-made graphics as well as producing their own graphics.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<i>The student will:</i> <ul style="list-style-type: none">• demonstrate the basic elements and principles of design by using computer software graphing tools to:<ul style="list-style-type: none">- duplicate graphics designs	<i>Assessment of student achievement will be based on:</i> <ul style="list-style-type: none">• reproduction of a document using paint/draw software tools/programs consisting of:<ul style="list-style-type: none">- text- graphics (paint, draw and/or imported)- use of design principles. <i>Assessment Tool</i> <i>Assessment Checklist: Graphic Tools Document Production and Software Functions (INF104-1)</i> <i>Standard</i> <i>Level 1</i>	30
<ul style="list-style-type: none">- create graphics layout	<ul style="list-style-type: none">• creation of an original document using paint/draw software tools/programs consisting of:<ul style="list-style-type: none">- text- graphics (paint, draw and/or imported)- use of design principles. <i>Assessment Tool</i> <i>Assessment Checklist: Graphic Tools Document Production and Software Functions (INF104-1)</i> <i>Standard</i> <i>Level 1</i>	30

MODULE INF104: GRAPHICS TOOLS (continued)

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<p><i>The student will</i></p> <ul style="list-style-type: none"> - use presentation software 	<p><i>Assessment of student achievement will be based on:</i></p> <ul style="list-style-type: none"> ● using the appropriate functions and graphic tools including: <ul style="list-style-type: none"> - file functions—create/save/load files - editing functions (cut/copy/move/paste/delete) - import graphic (clipart and/or scan) - text tools including style palette - paint tool (colour, fill, texture) - draw tools (line, rectangle, oval, cropping) - output functions (preview and print). <p><i>Assessment Tool</i> <i>Assessment Checklist: Graphic Tools Document Production and Software Functions (INF104-1)</i></p> <p><i>Standard</i> <i>Level 1</i></p>	30
<ul style="list-style-type: none"> ● consistently apply appropriate workstation routines 	<ul style="list-style-type: none"> ● demonstrate appropriate workstation routine. <p><i>Assessment Tool</i> <i>Assessment Checklist: Workstation Routines and Management (INFWRKSTN)</i></p> <p><i>Standard</i> <i>Rating of:</i> 1 - Workstation Use 2 - File Management 1 - Time Management/Organization 2 - Professionalism</p>	10
<ul style="list-style-type: none"> ● demonstrate effort to develop basic competencies. 	<ul style="list-style-type: none"> ● observations of individual effort and interpersonal interaction during the instructional period, emphasizing: <ul style="list-style-type: none"> - managing learning - managing resources. <p><i>Assessment Tool</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i></p>	Integrated throughout

MODULE INF104: GRAPHICS TOOLS (continued)

Concept	Specific Learner Expectations	Notes
Software Functions and Application	<p><i>The student should:</i></p> <ul style="list-style-type: none"> ● review key features of the graphic software packages available: <ul style="list-style-type: none"> - capabilities - system requirements - platform options - command structure ● demonstrate use of appropriate commands/tools, such as: <ul style="list-style-type: none"> - copy, paste, cut - ovals, rectangles, line and polygons - marque, lasso - eraser - fills - line options; e.g., arrows, patterns - inserting (placing) - resizing - repositioning - rulers - column guides - alignment - letter spacing - leading - kerning - typefaces (font, style) - indent - tabs - cropping ● create/load/merge/import/scan graphics elements/objects/files <ul style="list-style-type: none"> - presentation graphics (charting/diagramming/drawing) paint - resident functions (clip art) ● paint <ul style="list-style-type: none"> - create pixel bit-mapped object-oriented images - create/draw line/geometric object-oriented images using vector graphics ● computer aided design, if available <ul style="list-style-type: none"> - create computer graphics for design, drafting, documentation purposes ● screen capture/graphics conversion <ul style="list-style-type: none"> - integrate all forms of graphics elements including clip art design/merge/format/edit page (text/data/graphics). 	<p>Pixel and vector graphics are two basic software approaches to the production of images and range from free drawing screen activities to computer generated/controlled graphic designed elements. Graphics software includes toolboxes, and palettes, presentations, desktop publishing, artistic creations, space exploration, weather forecasting, computer animation, and computer aided design.</p>

MODULE INF104: GRAPHICS TOOLS (continued)

Concept	Specific Learner Expectations	Notes
Document Production	<p><i>The student should:</i></p> <ul style="list-style-type: none"> ● practise reproducing a variety of documents/ from a variety of sources using paint/draw software ● apply basic design principles when creating documents ● make use of 3-dimensional effects to create depth in documents ● design and create various documents using paint/draw programs ● use clipart to enhance document production ● create own graphics using available paint and draw tools to enhance document ● preview and print documents. 	<p>For example: line, shape, texture, colour, balance, proportion, contrast, harmony, unity.</p> <p>For example: use of overlapping, perspective, light and dark images, small and large images.</p> <p>For example: letterheads, business cards, advertisement, posters, title pages, logos, packaging, front view of home, floor plan, map to your home.</p>
Workstation Management	<ul style="list-style-type: none"> ● apply efficient workstation position and routines that encourage: <ul style="list-style-type: none"> - good health and safety (posture, positioning of hardware and furniture) - security for hardware, software, supplies and personal work ● demonstrate efficient and appropriate use of time and resources in terms of: <ul style="list-style-type: none"> - start-up procedures - organization of work area - closing procedures ● apply effective decision-making strategies in production assignments: <ul style="list-style-type: none"> - plan activities - organize data, information, resources - consider alternatives - evaluate activities/results ● use related terminology to describe basic processes, procedures and tools. 	

MODULE INF105: DATABASE I**Level:** Introductory**Theme:** Productivity Software**Prerequisite:** Computer Operations**Module Parameters:** Computer workstation, disk, database software, support resources

Students are introduced to the basic commands and functions of software and demonstrate how database software can be used as a personal tool in data and information management.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<i>The student will:</i> <ul style="list-style-type: none">● demonstrate basic electronic database software competence by:<ul style="list-style-type: none">– creating a database	<i>Assessment of student achievement will be based on:</i> <ul style="list-style-type: none">● database containing:<ul style="list-style-type: none">– a minimum of 5 fields and 10 records– both alpha and numeric fields– use of basic formulas. <i>Assessment Tool</i> <i>Assessment Checklist: Database Document</i> <i>Production and Software Functions (INFDB)</i> <i>Standard</i> <i>Mailable document (no errors in text or format)</i> <i>level 1</i>	45
<ul style="list-style-type: none">– manipulating a data and preparing reports	<ul style="list-style-type: none">● create and manipulate a database using the following functions:<ul style="list-style-type: none">– open/create/save files– format data/text for fields– sort (alphabetic, numeric, subject)– sequence– proofread and edit using cut, copy, paste and clear– calculate data– retrieve information (query, list, form, report)– use appropriate cursor movements/tools/commands– use help functions and references	45

MODULE INF105: DATABASE I (continued)

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> consistently apply appropriate workstation routines demonstrate effort to develop basic competencies. 	<p><i>Assessment of student achievement will be based on:</i></p> <ul style="list-style-type: none"> preview and print records production and printing of a well-organized report <p><i>Assessment Tool</i> <i>Assessment Checklist: Database Document Production and Software Functions (INFDB)</i></p> <p><i>Standard</i> <i>Mailable document (no errors in text or format) level 1</i></p> <ul style="list-style-type: none"> meeting or exceeding "acceptable" standards in appropriate workstation routines. <p><i>Assessment Tool (to be developed)</i> <i>Workstation Routines</i></p> <ul style="list-style-type: none"> demonstrate appropriate workstation routine. <p><i>Assessment Tool</i> <i>Assessment Checklist: Workstation Routines and Management (INFWRKSTN)</i></p> <p><i>Standard</i> <i>Rating of:</i> <i>1 - Workstation Use</i> <i>2 - File Management</i> <i>1 - Time Management/Organization</i> <i>2 - Professionalism</i></p> <ul style="list-style-type: none"> observations of individual effort and interpersonal interaction during the instructional period, emphasizing: <ul style="list-style-type: none"> managing learning managing resources. <p><i>Assessment Tools</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i></p>	<p>10</p> <p>Integrated throughout</p>

MODULE INF105 : DATABASE I (continued)

Concept	Specific Learner Expectations	Notes
Software Commands and Functions	<p><i>The student should:</i></p> <ul style="list-style-type: none"> ● review key features of the database software package: <ul style="list-style-type: none"> - capabilities/applications - system requirements - platform options - command structure ● demonstrate appropriate key commands to: <ul style="list-style-type: none"> - open/create files - enter data - name files ● demonstrate appropriate key commands to: <ul style="list-style-type: none"> - load/create, and save a database file - search - sort (alphabetic, numeric subject) - sequence - format data/text for fields, labels - add, clear, align/display ● apply appropriate format specifications and lay out parameters to organize information: <ul style="list-style-type: none"> - label - field ● manipulate data: <ul style="list-style-type: none"> - proofread, edit (cut, copy, paste, clear) - search - sort (alphabetic, numeric) - calculate - change/sequence ● retrieve information: <ul style="list-style-type: none"> - form view - list view - query view - report view ● demonstrate appropriate cursor movement tools/commands ● use help functions and references as appropriate. 	<p>Check data input for accuracy. Highlighting to change. Changing size. Update files/records. View files/split screen.</p> <p>Move through record(s) efficiently</p> <ul style="list-style-type: none"> - cursor movement/status line/mouse - split screen/move between planes/remove split.

MODULE INF105: DATABASE I (continued)

Concept	Specific Learner Expectations	Notes
Document Production	<p><i>The student should:</i></p> <ul style="list-style-type: none"> ● demonstrate appropriate key commands to output reports: <ul style="list-style-type: none"> - save files - preview records - print records ● demonstrate appropriate format specifications and layout to create a appropriate reports. 	<p>Update files as required to add, delete, and edit records</p> <p>Topic suggestions. Personal information. Student demographics. Collections: - sports pools - music/tapes - books.</p> <p>Identify/collect/ organize information/ resources.</p>
Workstation Management	<ul style="list-style-type: none"> ● apply efficient workstation position and routines that encourage: <ul style="list-style-type: none"> - good health and safety (posture, positioning of hardware and furniture) - security for hardware, software, supplies and personal work ● demonstrate efficient and appropriate use of time and resources in terms of: <ul style="list-style-type: none"> - start-up procedures - organization of work area - closing procedures ● apply effective decision-making strategies in production assignments: <ul style="list-style-type: none"> - plan activities - organize data, information, resources - consider alternatives - evaluate activities/results ● use related terminology to describe basic processes, procedures and tools. 	

MODULE INF106: SPREADSHEET I**Level:** Introductory**Theme:** Productivity Software**Prerequisite:** Computer Operations**Module Parameters:** Computer workstation, disk, spreadsheet software, support resources

Students have an opportunity to use basic functions and commands in spreadsheet software for general data manipulation and personal record keeping.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<i>The student will:</i> <ul style="list-style-type: none">● demonstrate basic electronic spreadsheet software competence by:<ul style="list-style-type: none">- creating a spreadsheet	<i>Assessment of student achievement will be based on:</i> <ul style="list-style-type: none">● spreadsheet containing:<ul style="list-style-type: none">- a minimum of four columns and five rows- use of appropriate headings- both alphabetic and numeric text- calculation of data using basic formulas- 5 fields and 10 records- both alpha and numeric columns (labels and values)- use of basic formulas- use of headers and/or footers- produce a well-organized document <i>Assessment Tool</i> <i>Assessment Checklist: Spreadsheet Document Production and Software Functions (INFSS)</i> <i>Standard</i> <i>Mailable document (no errors in text or format) level 1</i>	45
<ul style="list-style-type: none">- manipulating a data and preparing reports	<ul style="list-style-type: none">● creating and manipulate data in a spreadsheet using the following functions:<ul style="list-style-type: none">- open/create/save files- format cells, rows, column- proofread and edit cells, rows, columns, data- sort (alphabetically and numerically)- display chart graphics of data- split screen/freeze	45

MODULE INF106 : SPREADSHEET I (continued)

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> consistently apply appropriate workstation routines demonstrate effort to develop basic competencies. 	<p><i>Assessment of student achievement will be based on:</i></p> <ul style="list-style-type: none"> use help functions and references print report (portrait or landscape). <p><i>Assessment Tool</i> <i>Assessment Checklist: Spreadsheet Document Production and Software Functions (INFSS)</i></p> <p><i>Standard</i> <i>Mailable document (no errors in text or format) level 1</i></p> <ul style="list-style-type: none"> demonstrate appropriate workstation routine. <ul style="list-style-type: none"> managing learning managing resources. <p><i>Assessment Tool</i> <i>Assessment Checklist: Workstation Routines and Management (INFWRKSTN)</i></p> <p><i>Standard</i> <i>Rating of:</i> 1 - Workstation Use 2 - File Management 1 - Time Management/Organization 2 - Professionalism</p> <ul style="list-style-type: none"> observations of individual effort and interpersonal interaction during the instructional period, emphasizing: <ul style="list-style-type: none"> managing learning managing resources. <p><i>Assessment Tools</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i></p>	<p>10</p> <p>Integrated throughout</p>

Concept	Specific Learner Expectations	Notes
Software Commands and Functions	<p><i>The student should:</i></p> <ul style="list-style-type: none"> review key features of the spreadsheet software: <ul style="list-style-type: none"> capabilities system requirements platform options command structure output results: <ul style="list-style-type: none"> format information for reports including: <ul style="list-style-type: none"> text data charts 	<p>Create a spreadsheet by</p> <ul style="list-style-type: none"> identifying an application designing the format.

MODULE INF106: SPREADSHEET I (continued)

Concept	Specific Learner Expectations	Notes
Software Commands and Functions (continued)	<p><i>The student should:</i></p> <ul style="list-style-type: none"> - print reports <ul style="list-style-type: none"> portrait landscape appropriate headers/footers/references ● demonstrate appropriate key commands to: <ul style="list-style-type: none"> - open/record, create files - enter data - key/replicate/formulae - number pad—values - keyboard—labels - replicate - name files ● demonstrate appropriate key commands to: <ul style="list-style-type: none"> - save files - customize and print worksheets ● format cells, rows, columns: <ul style="list-style-type: none"> - alignment - number format (\$, %, decimals) - test format - column widths/row heights - borders/shading - formulae ● edit cells, rows, columns, data: <ul style="list-style-type: none"> - moving data and formulae - copying - clearing - replacing ● sort data (ascending, descending): <ul style="list-style-type: none"> - numeric - alphabetic ● calculate/recalculate data ● move through worksheet(s) efficiently by using appropriate cursor movement tools/commands: <ul style="list-style-type: none"> - split screen - freeze ● use help functions and references as appropriate. 	<p>Use built-in functions or create own.</p> <p>Potential projects:</p> <ul style="list-style-type: none"> - personal worksheets - budgets - recipes - grades records - inventories - financial problem solving - table comparisons.

MODULE INF106 : SPREADSHEET I (continued)

Concept	Specific Learner Expectations	
Document Production	<p><i>The student should:</i></p> <ul style="list-style-type: none"> ● demonstrate appropriate key commands to: <ul style="list-style-type: none"> - save files - customize and print worksheets <ul style="list-style-type: none"> ● formats (portrait, landscape) ● complete/sections ● demonstrate appropriate key commands to produce worksheets in accurate, well-organized form. 	
Workstation Management	<ul style="list-style-type: none"> ● apply efficient workstation position and routines that encourage: <ul style="list-style-type: none"> - good health and safety (posture, positioning of hardware and furniture) - security for hardware, software, supplies and personal work ● demonstrate efficient and appropriate use of time and resources in terms of: <ul style="list-style-type: none"> - start-up procedures - organization of work area - closing procedures ● apply effective decision-making strategies in production assignments: <ul style="list-style-type: none"> - plan activities - organize data, information, resources - consider alternatives - evaluate activities/results ● use related terminology to describe basic processes, procedures and tools. 	

MODULE INF107: HYPERMEDIA TOOLS

Level: Introductory

Theme: Dynamic Environment

Prerequisite: Computer Operations

Module Parameters: Computer workstation, disk, hypermedia software, support resources

Students develop basic skills with tools used for computerized presentations involving text, data, graphics, sounds and animation.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Weighting (%)
<i>The student will:</i> <ul style="list-style-type: none">● demonstrate basic hypermedia software competence by:<ul style="list-style-type: none">– accessing hypermedia tools– using these tools for specific purposes as directed– applying hypermedia tools to produce a short presentation● consistently apply appropriate workstation routines● demonstrate effort to develop basic competencies.	<i>Assessment of student achievement will be based on:</i> given available school, jurisdiction, community partnership resources: <ul style="list-style-type: none">● accessing hypermedia tools as directed using appropriate commands and devices.● completed teacher-specified tasks using hypermedia tools● the produced hypermedia presentation as presented to the teacher and/or teacher and peers <i>Assessment Tools (to be developed)</i> <i>Sample Assignment: Hypermedia Tools</i> <ul style="list-style-type: none">● meeting or exceeding "acceptable" standards in appropriate workstation routines. <i>Assessment Tools (to be developed)</i> <i>Workstation Routines</i> <ul style="list-style-type: none">● observations of individual effort and interpersonal interaction during the instructional period, emphasizing:<ul style="list-style-type: none">– managing learning– being innovative– managing resources. <i>Assessment Tools</i> <i>Observation Checklist: Basic Competencies</i>	30 30 30 10 No mark

MODULE INF107: HYPERMEDIA TOOLS (continued)

Concept	Specific Learner Expectations	Notes
Hypermedia Skills	<p><i>The student should:</i></p> <ul style="list-style-type: none"> ● access hypermedia program ● tour program with direction ● select and use teacher-specified program components ● complete tasks assigned covering accessing and manipulating: <ul style="list-style-type: none"> – text – data – graphics – sound – animation. 	<p>Skills are built in this part of the module that can be applied in the production of the presentation.</p> <p>Teachers will need to determine the extent of the skill development required by their students.</p>
Hypermedia Application	<ul style="list-style-type: none"> ● produce a short presentation using the following process: <ul style="list-style-type: none"> – identify project – design/flowchart algorithm(s) – determine card/stack characteristics/parameters – collect required support resources – produce presentation – present presentation. 	<p>Students should be able to produce a simple presentation with limited assistance. Teachers will need to determine the minimum skill requirements. Students should demonstrate independently during presentation production.</p>
Hypermedia Software Commands	<ul style="list-style-type: none"> ● apply hypermedia software commands to: <ul style="list-style-type: none"> – load/create/customize/modify hypermedia card/templates/stacks ● enter data: <ul style="list-style-type: none"> – key load data – create/import graphics – access/manipulate cards/stack(s) – create background – edit/modify/update buttons, cards, fields – use resident commands/scripting link stacks – incorporate text (alphabetic, numeric), graphics, motion, sound – demonstrate stack capability ● display/print/export: <ul style="list-style-type: none"> – card/stacks – report on stored information. 	

MODULE INF107: HYPERMEDIA TOOLS (continued)

Concept	Specific Learner Expectations	Notes
Workstation Management	<p><i>The student should:</i></p> <ul style="list-style-type: none"> ● apply efficient workstation position and routines that encourage: <ul style="list-style-type: none"> – good health and safety (posture, positioning of hardware and furniture) – security for hardware, software, supplies and personal work ● demonstrate efficient and appropriate use of time and resources in terms of: <ul style="list-style-type: none"> – start-up procedures – organization of work area – closing procedures ● apply effective decision-making strategies in production assignments: <ul style="list-style-type: none"> – plan activities – organize data, information, resources – consider alternatives – evaluate activities/results ● use related terminology to describe basic processes, procedures and tools. 	

MODULE INF108: PROGRAMMING I**Level: Introductory****Theme: Object-Oriented, Procedure-Oriented Programming****Prerequisite: Computer Operations****Module Parameters: Workstation, programming language, language code manual, support resources**

Students are introduced to computer programming languages and a structured programming environment and will construct algorithms and code instructions to solve identified problems.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Weighting (%)
<i>The student will:</i> <ul style="list-style-type: none">● demonstrate basic computer programming skill by:<ul style="list-style-type: none">– creating algorithms to solve problems– applying introductory structured computer coding programming skills <ul style="list-style-type: none">● consistently apply appropriate workstation routines	<i>Assessment of student achievement will be based on:</i> <ul style="list-style-type: none">● development of a program that demonstrates the efficient use of algorithms and language syntax. The program and related output will:<ul style="list-style-type: none">– use a linear algorithm to provide a solution to a problem– arrange the components of the problem in the categories of input, process and output	45
	<ul style="list-style-type: none">– interpret the output required– use language-specific techniques to assign values to variables and constants– employ language-specific mathematical operators for addition, subtraction, multiplication, division– illustrate language-specific structures for output formatting– test specific data to verify the validity of the program– document program internally and externally <i>Assessment Tools (to be developed)</i> <i>Sample Assignment: Programming 1A</i>	45
	<ul style="list-style-type: none">● meeting or exceeding “acceptable” standards in appropriate workstation routines. <i>Assessment Tools (to be developed)</i> <i>Workstation Routines</i>	10

MODULE INF108: PROGRAMMING I (continued)

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Weighting (%)
<p><i>The student will:</i></p> <ul style="list-style-type: none"> demonstrate effort to develop basic competencies. 	<p><i>Assessment of student achievement will be based on:</i></p> <ul style="list-style-type: none"> observations of individual effort and interpersonal interaction during the instructional period, emphasizing: <ul style="list-style-type: none"> managing learning being innovative managing resources. <p><i>Assessment Tools</i> <i>Observation Checklist: Basic Competencies</i></p>	No mark

Concept	Specific Learner Expectations	Notes
Computer Software	<p><i>The student should:</i></p> <ul style="list-style-type: none"> explain how software is the interface between humans and computer hardware and converts general-purpose computers into specialized problem-solving systems describe the purpose of system software: <ul style="list-style-type: none"> operating systems (command-driven, icon-driven) language translators (assemblers, compilers, interpreters) utilities (pre-programmed functions) describe application software: <ul style="list-style-type: none"> application packages (text, data, graphics, process control, simulations) customized programs (written for specific organizational function [s]) differentiate between integrated and dedicated software research sources of software availability: <ul style="list-style-type: none"> externally internally (inhouse development/ organizational processing) examine software resource support: <ul style="list-style-type: none"> user's manual operating instructions copyright contract 	<p>Buy lease, shareware, network/electronic bulletin board, retail outlets, computer manufacturers, magazines, professional association, user groups.</p>

MODULE INF108: PROGRAMMING I (continued)

Concept	Specific Learner Expectations	Notes
Computer Software (continued)	<p><i>The student should:</i></p> <ul style="list-style-type: none"> ● discuss the purpose of a computer programming language ● describe computer programming language categories: <ul style="list-style-type: none"> – machine-oriented – procedure-oriented – object-oriented ● identify several computer languages/structures and their focus ● compare several computer language instructions: <ul style="list-style-type: none"> – similarities – differences. ● identify data types/strings ● describe constants, variables ● discuss methods of program data input: <ul style="list-style-type: none"> – embed data in program – read a data file – enter interactivity ● explain data manipulation/processing: <ul style="list-style-type: none"> – operators – decision control – branching – looping ● illustrate various formats for data/information output: <ul style="list-style-type: none"> – text reports – data tables – graphics ● explain the differences between programming and code cutting. 	
Algorithms	<ul style="list-style-type: none"> ● describe the purpose of an algorithm ● discuss flowchart symbols ● analyze a structured design ● identify/describe the problem ● list each step required to solve the problem ● develop the appropriate logic to achieve the solution ● create a structured schematic/flowchart or pseudocode indicating how the solution will be achieved. 	

MODULE INF108: PROGRAMMING I (continued)

Concept	Specific Learner Expectations	Notes
Structured Programming	<p><i>The student should:</i></p> <ul style="list-style-type: none"> ● compare interactive versus batch processing ● differentiate between syntax and logic ● describe/illustrate examples of structured programming and indicate why it is important: <ul style="list-style-type: none"> – top-down programming – stepwise refinement ● explain structured programming constructs: <ul style="list-style-type: none"> – sequence, selection – repetition. 	
Structured Computer Programming Applications	<ul style="list-style-type: none"> ● access appropriate computer language resource support ● code simple programming tasks (i.e., I/P/O program following predefined format) ● prepare simple displays of text/data/font graphics ● key/code simple computer program(s) to solve simple problem(s): <ul style="list-style-type: none"> – identify logical solution – flowchart the algorithms – design output format – code the instructions – test run program – debug/edit – execute program – assess activities/results. 	
Workstation Management	<ul style="list-style-type: none"> ● apply efficient workstation position and routines that encourage: <ul style="list-style-type: none"> – good health and safety (posture, positioning of hardware and furniture) – security for hardware, software, supplies and personal work ● demonstrate efficient and appropriate use of time and resources in terms of: <ul style="list-style-type: none"> – start-up procedures – organization of work area – closing procedures 	

MODULE INF108: PROGRAMMING I (continued)

Concept	Specific Learner Expectations	Notes
Workstation Management (continued)	<p><i>The student should:</i></p> <ul style="list-style-type: none">● apply effective decision-making strategies in production assignments:<ul style="list-style-type: none">– plan activities– organize data, information, resources– consider alternatives– evaluate activities/results● use related terminology to describe basic processes, procedures and tools.	

5
7

INTERMEDIATE LEVEL

The following pages define the curriculum and assessment standards for the intermediate level of Information Processing.

Intermediate level modules help students build on the competencies developed at the introductory level and focus on developing more complex competencies. They provide a broader perspective, helping students recognize the wide range of related career opportunities available within the strand.

Module INF201:	Workstation Operations	E.3
Module INF202:	Electronic Bulletin Board Systems	E.7
Module INF203:	Keyboarding II	E.11
Module INF204:	Keyboarding III	E.15
Module INF205:	Word Processing II	E.17
Module INF206:	Electronic Publishing I	E.21
Module INF207:	Database II	E.25
Module INF208:	Spreadsheet II	E.29
Module INF209:	Correspondence	E.33
Module INF210:	Reports	E.37
Module INF211:	Tables/Forms	E.41
Module INF212:	Document Production I	E.45
Module INF213:	Multimedia Authoring I	E.47
Module INF214:	Process Control	E.51
Module INF215:	Programming II	E.55
Module INF216:	Programming III	E.61
Module INF217:	Programming IV	E.67
Module INF218:	Programming V	E.73

MODULE INF201: WORKSTATION OPERATIONS**Level: Intermediate****Theme: System Operations****Prerequisite: Computer Operations****Module Parameters: Computer workstation, disk, utility software, support resources**

Students learn computer workstation operations including computer architecture, peripherals, configurations, operating system environments and platforms, utility software, diagnostic and protection software, hard drive file updating and maintenance, support resource application, and troubleshooting activities.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Weighting (%)
<i>The student will:</i> <ul style="list-style-type: none">utilize file management procedures efficiently	<i>Assessment of student achievement will be based on:</i> <ul style="list-style-type: none">demonstrations to:<ul style="list-style-type: none">prepare, organize and use diskette and hard disk storage.<i>Assessment Tools (to be developed)</i> <i>Project Assessment Sheet</i>	20
<ul style="list-style-type: none">install and use software to support and maintain the integrity of workstation hardware	<ul style="list-style-type: none">set up two different software packages to maximize the system capabilities by:<ul style="list-style-type: none">planning directory layoutanalyzing memory specificationidentifying operating system requirementsrecommending client alternativestroubleshooting activities.<i>Assessment Tools (to be developed)</i> <i>Sample Assignment</i>	30
<ul style="list-style-type: none">configure and maintain workstation hardware	<ul style="list-style-type: none">accessing available resources students will:<ul style="list-style-type: none">identify "specific" components of the workstation with 80% accuracy and describe the related functions.<i>Assessment Tools (to be developed)</i> <i>Checklist</i>	30
<ul style="list-style-type: none">consistently apply workstation routines	<ul style="list-style-type: none">meeting or exceeding "acceptable standards" in appropriate workstation routines. <i>Assessment Tools (to be developed)</i> <i>Workstation Routines</i>	20

MODULE INF201: WORKSTATION OPERATIONS (continued)

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Weighting (%)
<p><i>The student will:</i></p> <ul style="list-style-type: none"> demonstrate effort to improve basic competencies. 	<p><i>Assessment of student achievement will be based on:</i></p> <ul style="list-style-type: none"> observations of individual effort and interpersonal interaction during the instructional period, emphasizing: <ul style="list-style-type: none"> managing learning ethics managing resources demonstrating responsibility. <p><i>Assessment Tools</i> <i>Observation Checklist: Basic Competencies</i></p>	No mark

Concept	Specific Learner Expectations	Notes
Software Installation and Use	<p><i>The student should:</i></p> <ul style="list-style-type: none"> install/update software: <ul style="list-style-type: none"> create/use directories/folders backup/restore files save/load files in various formats use appropriate operating system software commands for: <ul style="list-style-type: none"> defaults/supervising/housekeeping use utilities software: <ul style="list-style-type: none"> pre-established routines diagnostic viral protection communications shell spooler use application software: <ul style="list-style-type: none"> integrated/independent software windows menus/icons help screens use language translators: <ul style="list-style-type: none"> assemblers compilers interpreters load software application packages/customized programs 	Computer information processing systems consist of specific activities—input, process, output, storage. However, each of these functions involves the interface of various hardware components integrally supported by a variety of software programs all integrated into a particular operating system.

MODULE INF201: WORKSTATION OPERATIONS (continued)

Concept	Specific Learner Expectations	Notes
Software Installation and Use (continued)	<p><i>The student should:</i></p> <ul style="list-style-type: none"> ● recommend software applications: <ul style="list-style-type: none"> – identify system requirements for various software packages. 	
Hardware Configuration and Use	<ul style="list-style-type: none"> ● configure/interface hardware/peripherals, communication protocols: <ul style="list-style-type: none"> – arrange physical placement of peripherals/components – connect/disconnect/reconnect communication lines ● compare architecture/functions of computer processing systems (both standalone and network): <ul style="list-style-type: none"> – processors – input/output hardware – storage components/capacity – interface protocols – clock speed – physical dimensions – size ● describe/use available computer platforms: <ul style="list-style-type: none"> – DOS – UNIX – Apple, etc. 	
Policies and Procedures	<ul style="list-style-type: none"> ● follow established troubleshooting procedures for: <ul style="list-style-type: none"> – diagnosis – remediation ● describe effective policies and procedures for: <ul style="list-style-type: none"> – system/software access – security/protection – data integrity – obsolescence – ethical considerations – legal constraints – managing environmentally friendly routines <ul style="list-style-type: none"> ● paper disposal ● toner/ribbon ● old equipment. 	Follow hardware/software and educational instructions.

MODULE INF201: WORKSTATION OPERATIONS (continued)

Concept	Specific Learner Expectations	Notes
Workstation Management	<p><i>The student should:</i></p> <ul style="list-style-type: none"> ● apply efficient workstation position and routines that encourage: <ul style="list-style-type: none"> – good health and safety (posture, positioning of hardware and furniture) – security for hardware, software, supplies and personal work ● demonstrate efficient and appropriate use of time and resources in terms of: <ul style="list-style-type: none"> – start-up procedures – organization of work area – closing procedures ● apply effective decision-making strategies in production assignments: <ul style="list-style-type: none"> – plan activities – organize data, information, resources – consider alternatives – evaluate activities/results ● use related terminology to describe basic processes, procedures and tools. 	

MODULE INF202: ELECTRONIC BULLETIN BOARD SYSTEMS**Level: Intermediate****Theme: Systems Operations****Prerequisite: Computer Operations****Corequisite: Workstation Operations (recommended)****Module Parameters: Access to modem, telephone line, null modem cable**

This module provides an opportunity for students to learn to operate and maintain an EBB system(s), including proper use of hardware, software, peripherals, interface protocols, telecommunication equipment, data transmission characteristics and messaging parameters.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Weighting (%)
<i>The student will:</i> <ul style="list-style-type: none">● demonstrate basic EBB system competencies as:<ul style="list-style-type: none">- a user	<i>Assessment of student achievement will be based on:</i> <ul style="list-style-type: none">● access a variety of existing EBB services efficiently, following established etiquette for procedures. <i>Assessment Tools (to be developed)</i> <i>Instrument Tool</i>	20
<ul style="list-style-type: none">- an operator/manager	<ul style="list-style-type: none">● provide efficient EBB system service by<ul style="list-style-type: none">- configuring hardware- installing software- maintaining files- troubleshooting and diagnosing problems- offering user support services- monitoring/updating messages.<i>Assessment Tools (to be developed)</i> <i>Peer Evaluation</i>	40
<ul style="list-style-type: none">- a technician	<ul style="list-style-type: none">● given available resources, student will design and build a functional EBB system <i>Assessment Tools (to be developed)</i> <i>Exemplar Product</i>	30
● consistently apply workstation routines	<ul style="list-style-type: none">● meeting or exceeding "acceptable standards" in appropriate workstation routines. <i>Assessment Tools (to be developed)</i> <i>Workstation Routines</i>	10
● demonstrate effort to improve basic competencies.	<ul style="list-style-type: none">● observations of individual effort and interpersonal interaction during the instructional period, emphasizing:<ul style="list-style-type: none">- managing resources- ethics- managing resources.<i>Assessment Tools</i> <i>Observation Checklist: Basic Competencies</i>	No mark

MODULE INF202: ELECTRONIC BULLETIN BOARD SYSTEMS (continued)

Concept	Specific Learner Expectations	Notes
Bulletin Board Operations	<p><i>The student should:</i></p> <ul style="list-style-type: none"> ● identify basic hardware components and processes necessary to access a bulletin board ● compare various bulletin board systems in terms of: <ul style="list-style-type: none"> - information type - cost - applications ● identify and apply appropriate security codes ● access information from existing EBB systems: <ul style="list-style-type: none"> - in-house facilities - local area facilities - long distance facilities. 	An electronic bulletin board is a dedicated computer that provides a multi-user messaging services. Access can be made by entering appropriate passwords or security codes via remotely located computers that have modems connected to telephone lines. The user can download and upload messages as well as use the system for E-mail communication purposes.
Bulletin Board Management	<ul style="list-style-type: none"> ● configure interface/hardware/peripherals ● install appropriate system software ● install backup/restore files: <ul style="list-style-type: none"> - create/use directories/folders - incorporate file protection - create/delete messages ● apply manager's responsibilities <ul style="list-style-type: none"> - update board messages - monitor access/activities - schedule assistance activities - schedule assistance activities - provide assistance - evaluate performance - recommend changes - determine parameters/update messages ● maintain-update application, operating system and utility software on hard drive: <ul style="list-style-type: none"> - use defaults, supervisor housekeeping, diagnostic, viral protection software ● demonstrate acceptable EBB system operational performance ● perform troubleshooting: <ul style="list-style-type: none"> - diagnosis - remediation ● use support manuals/documentation ● follow hardware/software and school/educational regulations ● adhere to legal, professional and ethical expectations ● establish policies and procedures. 	Consider apprenticeship or student contract for hands-on experiences.

MODULE INF202: ELECTRONIC BULLETIN BOARD SYSTEMS (continued)

Concept	Specific Learner Expectations	Notes
Bulletin Board Management (continued)	<p><i>The student should:</i></p> <ul style="list-style-type: none"> ● identify electronic bulletin board system specifications that addresses: <ul style="list-style-type: none"> – reasons/conditions to establish network – the structure of a bulletin board system – hardware/software selection – recommend network topologies /training requirements – identify financial considerations – ergonomic factors ● design a function EBB system ● assemble and operationalize an EBB system. 	Use existing/available school/community hardware and software resources and establish either a classroom-based, school-based or district-based EBB system.
Workstation Management	<ul style="list-style-type: none"> ● apply efficient workstation position and routines that encourage: <ul style="list-style-type: none"> – good health and safety (posture, positioning of hardware and furniture) – security for hardware, software, supplies and personal work ● demonstrate efficient and appropriate use of time and resources in terms of: <ul style="list-style-type: none"> – start-up procedures – organization of work area – closing procedures ● apply effective decision-making strategies in production assignments: <ul style="list-style-type: none"> – plan activities – organize data, information, resources – consider alternatives – evaluate activities/results ● use related terminology to describe basic processes, procedures and tools. 	

MODULE INF203: KEYBOARDING II**Level:** Intermediate**Theme:** Text/Data Input**Prerequisite:** Keyboarding I**Module Parameters:** Computer workstation, disk, word-processing software, support resources

This module enhances the students' personal use keyboarding competencies by increasing the rate of accurate touch-keystroking of the alphabet and numbers and selected punctuation keys.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<i>The student will:</i> <ul style="list-style-type: none">● demonstrate keyboarding competence<ul style="list-style-type: none">- text entry (30 wpm)- numeric entry (100 kpm)- technique	<i>Assessment of student achievement will be based on:</i> <ul style="list-style-type: none">● touch-keystroke three timed attempts from formatted straight-copy material:<ul style="list-style-type: none">- on alphabetic keys<ul style="list-style-type: none">● two-minute duration● maximum 1 uncorrected error● $SI \leq 1.25$● 30 words a minute- on numeric keys:<ul style="list-style-type: none">● one minute duration● maximum 1 uncorrected error● 100 numeric keystrokes a minute on 1 to 3 digit numbers- observations over the last quarter of the instructional period, during timings and drill work.<i>Assessment Tool</i> <i>Assessment Checklist: Text-Data Entry (INFTDENT)</i> <i>Standard</i> <i>Rating of:</i> 4 - Eye Focus 3 - Keystroking 2 - Service Keys 3 - Body Position	50 10 30

MODULE INF203: KEYBOARDING II

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> consistently apply appropriate workstation routines demonstrate effort to develop basic competencies. 	<p><i>Assessment of student achievement will be based on:</i></p> <ul style="list-style-type: none"> demonstrate appropriate workstation routines. <p><i>Assessment Tool</i> <i>Assessment Checklist: Workstation Routines and Management (INFWRKSTN)</i></p> <p><i>Standard</i> <i>Rating of:</i> 2 – Workstation Use 3 – File Management 2 – Time Management/Organization 3 – Professionalism</p> <ul style="list-style-type: none"> observations of individual effort and interpersonal interaction during the instructional period, emphasizing: <ul style="list-style-type: none"> managing learning ethics managing resources demonstrating responsibility. <p><i>Assessment Tools</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i></p>	<p>10</p> <p>Integrated throughout</p>

Concept	Specific Learner Expectations	Notes
Text Entry	<p><i>The student should:</i></p> <ul style="list-style-type: none"> demonstrate increasingly rapid, accurate touch keystroking on straight copy of: <ul style="list-style-type: none"> alphabetic keys number keys punctuation keys (.,:;?"'()!-_) symbol keys \$, , &, % service keys (enter, shift, delete, backspace, tab) use function and cursor movement keys efficiently 	<p>Develop speed and accuracy at the phrase, sentence and short paragraph level using short, repetitive timings (12 seconds to 1 minute) with straight copy text of varying SI. (1.0–1.4).</p>

MODULE INF203: KEYBOARDING II (continued)

Concept	Specific Learner Expectations	Notes
Text Entry (continued)	<p><i>The student should:</i></p> <ul style="list-style-type: none"> ● demonstrate correct keystroking technique: <ul style="list-style-type: none"> - enter text using designated fingers - maintain home-row anchor position - demonstrate correct posture (hand, arm body) ● proofread and edit text while on screen and from printout to ensure text is without error ● analyze errors and initiate remediation as appropriate for <ul style="list-style-type: none"> - spelling, shifting, punctuation and spacing errors - transposed, repeated, omitted letters. 	
Data Entry	<ul style="list-style-type: none"> ● demonstrate rapid, accurate data entry on keyboard number pad: <ul style="list-style-type: none"> - using designated fingers - maintaining anchor position. 	
Workstation Management	<ul style="list-style-type: none"> ● apply efficient workstation position and routines that encourage: <ul style="list-style-type: none"> - good health and safety (posture, positioning of hardware and furniture) - security for hardware, software, supplies and personal work ● demonstrate efficient and appropriate use of time and resources in terms of: <ul style="list-style-type: none"> - start-up procedures - organization of work area - closing procedures ● apply effective decision-making strategies in production assignments: <ul style="list-style-type: none"> - plan activities - organize data, information, resources - consider alternatives - evaluate activities/results ● use related terminology to describe basic processes, procedures and tools. 	

MODULE INF204: KEYBOARDING III**Level:** Intermediate**Theme:** Text/Data Input**Prerequisite:** Keyboarding II**Module Parameters:** Computer workstation, disk, word-processing software, support resources

This module enhances the students' keyboarding competencies by increasing the rate of accurate touch-keystroking of alphabetic, numeric and all punctuation keys to support personal use and limited entry-level workplace opportunities.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<i>The student will:</i> <ul style="list-style-type: none">● demonstrate keyboarding competence<ul style="list-style-type: none">- text entry (40 wpm)- numeric entry (120 kpm)- technique	<i>Assessment of student achievement will be based on:</i> <ul style="list-style-type: none">● successfully touch-keystroke three timed attempts from formatted straight-copy material:<ul style="list-style-type: none">- on alphabetic keys<ul style="list-style-type: none">● two minute duration● maximum 1 uncorrected error● SI 1.2 - 1.35● 40 words a minute- on numeric keys:<ul style="list-style-type: none">● one minute duration● maximum 1 uncorrected error● 120 numeric keystrokes a minute on 1 to 4 digit numbers- observations over the last quarter of the instructional period, during timings and drill work. <i>Assessment Tool</i> <i>Assessment Checklist: Text-Data Entry (INFTDENT)</i> <i>Standard</i> <i>Rating of:</i> <i>4 - Eye Focus</i> <i>3 - Keystroking</i> <i>2 - Service Keys</i> <i>3 - Body Position</i>	50 10 30

MODULE INF204: KEYBOARDING III (continued)

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> ● consistently apply appropriate workstation routines ● demonstrate effort to develop basic competencies. 	<p><i>Assessment of student achievement will be based on:</i></p> <ul style="list-style-type: none"> ● demonstrate appropriate workstation routines. <p><i>Assessment Tool</i> <i>Assessment Checklist: Workstation Routines and Management (INFWRKSTN)</i></p> <p><i>Standard</i> <i>Rating of:</i> 2 – Workstation Use 3 – File Management 2 – Time Management/Organization 3 – Professionalism</p> <ul style="list-style-type: none"> ● observations of individual effort and interpersonal interaction during the instructional period, emphasizing: <ul style="list-style-type: none"> – managing learning – managing resources. <p><i>Assessment Tools</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i></p>	<p>10</p> <p>Integrated throughout</p>

MODULE INF204: KEYBOARDING III (continued)

Concept	Specific Learner Expectations	Notes
Text Entry	<p><i>The student should:</i></p> <ul style="list-style-type: none"> ● demonstrate increasingly rapid, accurate touch keystroking on straight copy of: <ul style="list-style-type: none"> – alphanumeric keys – all punctuation keys – service keys (enter, shift, backspace, tab) ● use function and cursor movement keys efficiently ● demonstrate correct keystroking technique: <ul style="list-style-type: none"> – enter text using designated fingers – maintain home-row anchor position – demonstrate correct posture (hand, arm body) ● proofread and edit text (screen and hardcopy) to ensure text is without error ● analyze errors and initiate remediation as appropriate for: <ul style="list-style-type: none"> – spelling, shifting, punctuation and spacing errors – transposed, repeated, omitted letters. 	Develop speed and accuracy at the phrase, sentence and short paragraph level using short, repetitive timings (.5 to 1 minute) with straight copy text of varying SI. (1.2–1.5).
Data Entry	<ul style="list-style-type: none"> ● demonstrate rapid, accurate data entry on keyboard number pad: <ul style="list-style-type: none"> – using designated fingers – maintaining anchor position. 	
Workstation Management	<ul style="list-style-type: none"> ● apply efficient workstation position and routines that encourage: <ul style="list-style-type: none"> – good health and safety (posture, positioning of hardware and furniture) – security for hardware, software, supplies and personal work ● demonstrate efficient and appropriate use of time and resources in terms of: <ul style="list-style-type: none"> – start-up procedures – organization of work area – closing procedures ● apply effective decision-making strategies in production assignments: <ul style="list-style-type: none"> – plan activities – organize data, information, resources – consider alternatives – evaluate activities/results ● use related terminology to describe basic processes, procedures and tools. 	

MODULE INF205: WORD PROCESSING II**Level:** Intermediate**Theme:** Productivity Software**Prerequisites:** Keyboarding I
Word Processing I
(Keyboarding II recommended corequisite)**Module Parameters:** Computer workstation, disk, word-processing software, support resources

Students expand their skills in using word-processing software commands and functions to produce mailable reports, correspondence (including letters and memos) and tables from rough draft copy.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> • demonstrate correct use of software functions by producing a mailable, properly formatted copy of a: <ul style="list-style-type: none"> - report paginated with headers, footers and title pages 	<p><i>Assessment of student achievement will be based on:</i></p> <ul style="list-style-type: none"> • production of a minimum of three properly formatted mailable documents, based on unformatted, rough draft source documents: <ul style="list-style-type: none"> - two-page report containing: <ul style="list-style-type: none"> • headings and subheadings • headers/footers • outline • display paragraph • title page • references (footnotes, endnotes, bibliography). <p><i>Assessment Tool</i> <i>Assessment Checklist: Word Processing Software Functions (INFWORD)</i> <i>Assessment Checklist: Document Production Features (INFDOCPR)</i></p> <p><i>Standard</i> <i>Mailable document (no errors in text or format) level 2</i></p>	30
<ul style="list-style-type: none"> - letter with special notations in a designated letter style 	<ul style="list-style-type: none"> - one-page letter containing all basic letter parts plus: <ul style="list-style-type: none"> • special notations • a specified style • subject line • attention line. <p><i>Assessment Tool</i> <i>Assessment Checklist: Word Processing Software Functions (INFWORD)</i> <i>Assessment Checklist: Document Production Features (INFDOCPR)</i></p> <p><i>Standard</i> <i>Mailable document (no errors in text or format) level 2</i></p>	20

MODULE INF205: WORD PROCESSING II (continued)

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> - memorandum 	<p><i>Assessment of student achievement will be based on:</i></p> <ul style="list-style-type: none"> - a rough draft memorandum containing: <ul style="list-style-type: none"> • basic memo parts • use of one memorandum style. <p><i>Assessment Tool</i> <i>Assessment Checklist: Word Processing Software Functions (INFWORD)</i> <i>Assessment Checklist: Document Production Features (INFDOCPR)</i></p> <p><i>Standard</i> <i>Mailable document (no errors in text or format) level 2</i></p>	10
<ul style="list-style-type: none"> - multi-column table with borders and footnotes 	<ul style="list-style-type: none"> - multi-column table containing: <ul style="list-style-type: none"> • main titles and subtitles • column heads • borders • footnotes • sorted • box/ruled. <p><i>Assessment Tool</i> <i>Assessment Checklist: Word Processing Software Functions (INFWORD)</i> <i>Assessment Checklist: Document Production Features (INFDOCPR)</i></p> <p><i>Standard</i> <i>Mailable document (no errors in text or format) level 2</i></p>	30
<ul style="list-style-type: none"> • consistently apply appropriate workstation routines 	<ul style="list-style-type: none"> • demonstrate appropriate workstation routines. <p><i>Assessment Tool</i> <i>Assessment Checklist: Workstation Routines and Management (INFWRKSTN)</i></p> <p><i>Standard</i> <i>Rating of:</i> 2 - Workstation Use 3 - File Management 2 - Time Management/Organization 3 - Professionalism</p>	10
<ul style="list-style-type: none"> • demonstrate effort to develop basic competencies. 	<ul style="list-style-type: none"> • observations of individual effort and interpersonal interaction during the instructional period, emphasizing: <ul style="list-style-type: none"> - managing learning - managing resources. <p><i>Assessment Tool</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i></p>	Integrated throughout

MODULE INF205: WORD PROCESSING II (continued)

Concept	Specific Learner Expectations	Notes
Software Functions and Applications	<p><i>The student should:</i></p> <ul style="list-style-type: none"> ● review key features of the word-processing software package: <ul style="list-style-type: none"> - capabilities - system requirements - platform options - command structure ● demonstrate appropriate key commands to: <ul style="list-style-type: none"> - open/create files - enter text - name files ● demonstrate appropriate key commands to: <ul style="list-style-type: none"> - format text <ul style="list-style-type: none"> ● rulers/margins ● line spacing ● positioning (horizontally, vertically centred) ● tabs ● tables ● font styles/sizes ● footers/headers - proofread, edit text <ul style="list-style-type: none"> ● move (cut and paste) ● spell check ● search and replace ● delete text - paginate text ● move through document(s) efficiently by using appropriate cursor movement tools/commands ● use help functions and references as appropriate. ● demonstrate appropriate key commands to: <ul style="list-style-type: none"> - save files - print documents (alternative formats) 	<p>Uses micros as appropriate.</p> <p>Arrows, select, undo, goto.</p>



MODULE INF206: ELECTRONIC PUBLISHING I**Level: Intermediate****Theme: Productivity Software****Prerequisite: Word Processing I, Graphics Tools****Module Parameters: Computer workstation, disk, electronic/desktop publishing software, support resources**

This module provides an opportunity for students to develop skill using electronic/desktop publishing software to create a variety of camera-ready documents.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Weighting (%)
<i>The student will:</i> <ul style="list-style-type: none">● demonstrate basic electronic publishing software competence by:<ul style="list-style-type: none">– using page make-up tools and commands to produce a camera-ready document● consistently apply workstation routines● demonstrate effort to improve basic competencies.	<i>Assessment of student achievement will be based on:</i> <ul style="list-style-type: none">● Production of a minimum two-page, camera-ready document that effectively uses:<ul style="list-style-type: none">– page make-up tools (including pointer, line, text, rectangle, oval, cropping, etc.).<i>Assessment Tools</i> <i>Sample Assignment: EPIA</i><ul style="list-style-type: none">– page make-up commands (including format, typeface, import, link, etc.).<i>Assessment Tools (to be developed)</i> <i>Sample Assignment: EPIB</i>● meeting or exceeding “acceptable standards” in appropriate workstation routines. <i>Assessment Tools (to be developed)</i> <i>Workstation Routines</i>● observations of individual effort and interpersonal interaction during the instructional period, emphasizing:<ul style="list-style-type: none">– managing learning– managing resources.<i>Assessment Tools</i> <i>Observation Checklist: Basic Competencies</i>	45 45 10 No mark

MODULE INF206: ELECTRONIC PUBLISHING I (continued)

Concept	Specific Learner Expectations	Notes
Software Functions and Applications	<p><i>The student should:</i></p> <ul style="list-style-type: none"> ● review key features of the desktop software package: <ul style="list-style-type: none"> – capabilities – system requirements – platform options – command structure ● assess the factors that affect desktop publishing layout: <ul style="list-style-type: none"> – budget considerations – time constraints – nature of audience/message – conditions of presentation ● describe links/economies between typesetting-publishing and desktop publishing applications ● demonstrate appropriate key commands to: <ul style="list-style-type: none"> – open/create files/templates – enter text/graphics <ul style="list-style-type: none"> ● scan ● import file ● merge ● cut and paste – name files. ● demonstrate appropriate key commands to: <ul style="list-style-type: none"> – format text <ul style="list-style-type: none"> ● graphics on screen ruler guides ● columns, borders, margins ● gutters, baselines ● alignment, hyphenation ● letter spacing, kerning, line spacing ● typefaces (font, style, size) ● graphics (placement, adjustment) ● indents and tabs ● linking text/graphics ● linking text/graphics ● book publication ● graphics (TIFF, ESP, scanned, line art, halftones, gray scales, colour defaults, one-colour) – proofread, edit text (enhance, enlarge, crop, size, scale) ● move through document(s) efficiently by using appropriate cursor movement tools/commands 	<p>Compare a variety of:</p> <ul style="list-style-type: none"> – desktop publishing – analyze/evaluate – distinguishing – characteristics <p>Evaluate software for integration capability with desktop publishing applications:</p> <ul style="list-style-type: none"> – word processing – spreadsheet – database – chart graphics – presentation graphics. <p>Identify data input (text and graphics) sources.</p> <p>Access available typefaces, clip art.</p> <p>Desktop applications:</p> <ul style="list-style-type: none"> – personal documents – class assignments – signs, announcements, invitations, advertisements – brochures (single-, folded-page) – school newsletter, newspaper, yearbook – community activities – business applications.

MODULE INF206: ELECTRONIC PUBLISHING I (continued)

Concept	Specific Learner Expectations	Notes
Software Functions and Applications (continued)	<p><i>The student should:</i></p> <ul style="list-style-type: none"> ● customize/edit graphics objects/files plan/create customized desktop templates: <ul style="list-style-type: none"> – grid-based – placeholder ● use help functions and references as appropriate. 	
Document Production (Output)	<ul style="list-style-type: none"> ● demonstrate appropriate key commands to: <ul style="list-style-type: none"> – save/export desktop publishing and graphics files in a variety of formats – print documents ● demonstrate appropriate key commands to produce documents in various desktop published and graphics forms. 	
Workstation Management	<ul style="list-style-type: none"> ● apply efficient workstation position and routines that encourage: <ul style="list-style-type: none"> – good health and safety (posture, positioning of hardware and furniture) – security for hardware, software, supplies and personal work ● demonstrate efficient and appropriate use of time and resources in terms of: <ul style="list-style-type: none"> – start-up procedures – organization of work area – closing procedures ● apply effective decision-making strategies in production assignments: <ul style="list-style-type: none"> – plan activities – organize data, information, resources – consider alternatives – evaluate activities/results ● use related terminology to describe basic processes, procedures and tools. 	

MODULE INF207: DATABASE II**Level: Intermediate****Theme: Productivity Software****Prerequisite: Database I****Module Parameters: Computer workstation, disk, database software, support resources**

Students use all the commands and functions of electronic database software that support effective and efficient database applications.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<i>The student will:</i> <ul style="list-style-type: none">● demonstrate advanced level electronic database software competence by:<ul style="list-style-type: none">- creating hierarchical and relational databases	<i>Assessment of student achievement will be based on:</i> <ul style="list-style-type: none">● two databases containing:<ul style="list-style-type: none">- multiple files- multiple field types- a minimum of one hierarchical database- a minimum of one relational database <i>Assessment Tool</i> <i>Assessment Checklist: Database Document Production and Software Functions (INFDB)</i> <i>Standard</i> <i>Mailable document (no errors in text or format)</i> <i>level 2</i>	40
<ul style="list-style-type: none">- importing and manipulating a data and preparing reports	<ul style="list-style-type: none">● manipulating data in a database using a minimum of five of the following:<ul style="list-style-type: none">- scan, import data- query- merge with another document- incorporate macros- linking- sequencing/sorting- apply formulas- create chart/graph data presentations● preview and print records● production and printing of a well-organized report. <i>Assessment Tool</i> <i>Assessment Checklist: Database Document Production and Software Functions (INFDB)</i> <i>Standard</i> <i>Mailable document (no errors in text or format)</i> <i>level 2</i>	50

MODULE INF207: DATABASE II (continued)

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> consistently apply appropriate workstation routines demonstrate effort to develop basic competencies 	<p><i>Assessment of student achievement will be based on:</i></p> <ul style="list-style-type: none"> demonstrate appropriate workstation routine. <i>Assessment Tool</i> <i>Assessment Checklist: Workstation Routines and Management (INFWRKSTN)</i> <i>Standard</i> <i>Rating of:</i> 2 – Workstation Use 3 – File Management 2 – Time Management/Organization 3 – Professionalism observations of individual effort and interpersonal interaction during the instructional period, emphasizing: <ul style="list-style-type: none"> managing learning managing resources. <i>Assessment Tool</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i> 	<p>10</p> <p>Integrated throughout</p>

Concept	Specific Learner Expectations	Notes
Software Commands and Functions	<p><i>The student should:</i></p> <ul style="list-style-type: none"> review key features of the database software package: <ul style="list-style-type: none"> capabilities system requirements platform options command structure demonstrate appropriate key commands to: <ul style="list-style-type: none"> open/create/access files, templates, macros enter data key, copy formulae name files scan, import data format database compare “dbase” models: <ul style="list-style-type: none"> hierarchical relational format file design parameters: <ul style="list-style-type: none"> field, record file parameters demonstrate appropriate key commands to: <ul style="list-style-type: none"> format data (cells, rows, columns) use and format formulae, text, numbers use query language commands to access information 	<p>Create, edit, calculate, search.</p> <p>Font-type, style, size .</p> <p>Stacked/overlapped grid lines, fills.</p> <p>Hatch patterns.</p> <p>Display/hide series of data menu.</p> <p>Data clarity (sequence, labels, titles, symbols)</p> <p>Function key.</p> <p>Command key/mouse</p> <ul style="list-style-type: none"> manual reference texts help.

MODULE INF207: DATABASE II (continued)

Concept	Specific Learner Expectations	Notes
Software Commands and Functions (continued)	<p><i>The student should:</i></p> <ul style="list-style-type: none"> - use query language commands to access information - form, list, query, report views - create/import data - incorporate macros ● create graphic data representations: <ul style="list-style-type: none"> - proofread, edit data - edit graphic representations ● move through records efficiently by using appropriate cursor movement tools/commands ● use help functions and references as appropriate. 	
Document Production	<ul style="list-style-type: none"> ● demonstrate appropriate key commands to: <ul style="list-style-type: none"> - save files - preview records - print illustrated hard copy reports ● demonstrate appropriate key commands to produce a report (text, data, graphics): <ul style="list-style-type: none"> - print reports - export files ● use report writers/format report specifications and layout. 	<p>Topic ideas:</p> <ul style="list-style-type: none"> - community data - libraries - agricultural inventories - business inventories - help features - flexibility - user friendly - response time.
Workstation Management	<ul style="list-style-type: none"> ● apply efficient workstation position and routines that encourage: <ul style="list-style-type: none"> - good health and safety (posture, positioning of hardware and furniture) - security for hardware, software, supplies and personal work ● demonstrate efficient and appropriate use of time and resources in terms of: <ul style="list-style-type: none"> - start-up procedures - organization of work area - closing procedures ● apply effective decision-making strategies in production assignments: <ul style="list-style-type: none"> - plan activities - organize data, information, resources - consider alternatives - evaluate activities/results ● use related terminology to describe basic processes, procedures and tools. 	

MODULE INF208: SPREADSHEET II**Level:** Intermediate**Theme:** Productivity Software**Prerequisite:** Spreadsheet I**Module Parameters:** Computer workstation, disk, spreadsheet software, support resources.

Students demonstrate advanced level spreadsheet commands and functions to calculate and manipulate data and prepare appropriate printouts and reports in text and graphic format.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<i>The student will:</i> <ul style="list-style-type: none">• demonstrate advanced level electronic spreadsheet software competence by:<ul style="list-style-type: none">- creating a spreadsheet, including importing data	<i>Assessment of student achievement will be based on:</i> <ul style="list-style-type: none">• given appropriate data and instructions without assistance:<ul style="list-style-type: none">- two spreadsheets containing:<ul style="list-style-type: none">• multiple rows and columns of alphabetic, numeric and alphanumeric data• calculate data using customized formulas• use of appropriate headings• use relative and absolute addresses• emphasize the ability to predict/forecast using what if scenarios• use of appropriate headers, footers and references• produce a well-organized document. <i>Assessment Tool</i> <i>Assessment Checklist: Spreadsheet Document Production and Software Functions (INFSS)</i> <i>Standard</i> <i>Mailable document (no errors in text or format) level 2</i>	40
<ul style="list-style-type: none">- manipulating a data and preparing reports	<ul style="list-style-type: none">- manipulate data in a spreadsheet using a minimum of five of the following:<ul style="list-style-type: none">• use of all resident functions• format cells, rows, columns• incorporate macros• sort data (alphabetically and numerically)• calculate/recalculate "what if" scenarios• format data range/report• incorporate chart graphics of data• merge with other documents	50

MODULE INF208: SPREADSHEET II (continued)

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> consistently apply appropriate workstation routines demonstrate effort to develop basic competencies. 	<p><i>Assessment of student achievement will be based on:</i></p> <ul style="list-style-type: none"> print reports (portrait and landscape). <p><i>Assessment Tool</i> <i>Assessment Checklist: Spreadsheet Document Production and Software Functions (INFSS)</i></p> <p><i>Standard</i> <i>Mailable document (no errors in text or format) level 2</i></p> <ul style="list-style-type: none"> demonstrate appropriate workstation routine. <p><i>Assessment Tool</i> <i>Assessment Checklist: Workstation Routines and Management (INFWRKSTN)</i></p> <p><i>Standard</i> <i>Rating of:</i> <i>2 – Workstation Use</i> <i>3 – File Management</i> <i>2 – Time Management/Organization</i> <i>3 – Professionalism</i></p> <ul style="list-style-type: none"> observations of individual effort and interpersonal interaction during the instructional period, emphasizing: <ul style="list-style-type: none"> managing learning managing resources. <p><i>Assessment Tools</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i></p>	<p>10</p> <p>Integrated throughout</p>

MODULE INF208: SPREADSHEET II (continued)

Concept	Specific Learner Expectations	Notes
Software Commands and Functions	<p><i>The student should:</i></p> <ul style="list-style-type: none"> ● review key features of the spreadsheet software package: <ul style="list-style-type: none"> - capabilities - system requirements - platform options - command structure ● demonstrate appropriate key commands to: <ul style="list-style-type: none"> - open/create files/templates - enter data <ul style="list-style-type: none"> ● number pad values ● keyboard—labels/formulae ● paste, import data ● replicate - name files ● demonstrate appropriate key commands to: <ul style="list-style-type: none"> - format text/data - create chart/graph (use graph tools) - view text/data - modify text/data - values - titles - labels - legends - fonts (size, style) - colour - pattern - grids - borders ● merge data with other documents ● incorporate macros to: <ul style="list-style-type: none"> - edit data - copy - cut - paste - sort - move data and formats - copy data and formats - clear cells, rows and columns - replace cells, rows and columns ● sort data ● calculate/recalculate ● move through worksheet(s) efficiently by using appropriate cursor movement tools/commands: <ul style="list-style-type: none"> - split screen - freeze 	<p>Identify application(s).</p> <p>Collect/organize information/ resources</p> <p>Design alternative formats/structures.</p> <p>Plan/execute activities.</p> <p>Critique results.</p> <p>Compare the effectiveness of various spreadsheet designs.</p> <p>Cells, rows, columns.</p> <p>Templates.</p> <p>Alignment.</p> <p>Number format (\$, %, decimals).</p> <p>Text format</p> <p>Column widths/row heights.</p> <p>Borders/shading.</p> <p>Calculate/ recalculate</p> <p>Set formulae.</p> <p>Merging skill is useful (see Word Processing III)</p> <p>Ascending, descending. Numeric. Alphabetic.</p>

MODULE INF208: SPREADSHEET II (continued)

Concept	Specific Learner Expectations	Notes
Document Production	<p><i>The student should:</i></p> <ul style="list-style-type: none"> ● demonstrate appropriate key commands to: <ul style="list-style-type: none"> - save files - utilize chart/graphing software capabilities - customize and print worksheets <ul style="list-style-type: none"> ● formats (portrait, landscape) ● complete/sections ● paper size ● illustrated reports ● demonstrate appropriate key commands to produce accurate, well-organized spreadsheets that emphasize the ability to predict/forecast using "what-if" scenarios. 	<p>Incorporate "what-if" possibilities for:</p> <ul style="list-style-type: none"> - travel expenses - problem-solving applications - election predictions, design/cost decision - feed analysis.
Workstation Management	<ul style="list-style-type: none"> ● apply efficient workstation position and routines that encourage: <ul style="list-style-type: none"> - good health and safety (posture, positioning of hardware and furniture) - security for hardware, software, supplies and personal work ● demonstrate efficient and appropriate use of time and resources in terms of: <ul style="list-style-type: none"> - start-up procedures - organization of work area - closing procedures ● apply effective decision-making strategies in production assignments: <ul style="list-style-type: none"> - plan activities - organize data, information, resources - consider alternatives - evaluate activities/results ● use related terminology to describe basic processes, procedures and tools. 	

MODULE INF209: CORRESPONDENCE**Level: Intermediate****Theme: Applied Processing****Pre/corequisite: Word Processing II, Keyboarding III****Module Parameters: Computer workstation, disk, word-processing software, support resources**

Student expand their rate of document production as they prepare various forms of correspondence in mailable form, using word-processing software.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Weighting (%)
<i>The student will:</i> <ul style="list-style-type: none">● demonstrate efficient word-processing correspondence competence by the:<ul style="list-style-type: none">- production of mailable correspondence in a variety of formats under time constraints- ability to edit and format correspondence● consistently apply workstation routines	<i>Assessment of student achievement will be based on:</i> <ul style="list-style-type: none">● production (enter, format, edit and print) of a set of memos, envelopes or labels at an "acceptable" rate of production, given edited, unformatted copy. <i>Assessment Tools (to be developed)</i> <i>Sample Correspondence Test</i> <i>Correspondence Evaluation Sheet</i>	30
	<ul style="list-style-type: none">● production (enter, format, edit and print) of a set of correspondence at an "acceptable" rate of production, given unedited, unformatted copy. <i>Assessment tools (to be developed)</i> <i>Sample Correspondence Test</i> <i>Correspondence Evaluation Sheet</i>	30
	<ul style="list-style-type: none">● production of a mailable copy of existing documents requiring proofing, editing and formatting. <i>Assessment Tools (to be developed)</i> <i>Sample Editing Test</i> <i>Correspondence Evaluation Sheet</i>	
	<ul style="list-style-type: none">● meeting or exceeding "acceptable standards" in appropriate workstation routines. <i>Assessment Tools (to be developed)</i> <i>Workstation Routines</i>	10

MODULE INF209: CORRESPONDENCE (continued)

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Weighting (%)
<p><i>The student will:</i></p> <ul style="list-style-type: none"> demonstrate effort to improve basic competencies. 	<p><i>Assessment of student achievement will be based on:</i></p> <ul style="list-style-type: none"> observations of individual effort and interpersonal interaction during the instructional period, emphasizing: <ul style="list-style-type: none"> managing learning managing resources. <p><i>Assessment Tools</i> <i>Observation Checklist: Basic Competencies</i></p>	No mark

Concept	Specific Learner Expectations	Notes
Document Creation	<p><i>The student should:</i></p> <ul style="list-style-type: none"> demonstrate efficient and accurate keystroking and software command use to open and name files and to produce mailable documents enter text from formatted copy in which text is: <ul style="list-style-type: none"> error free draft, edited unedited plan layout and enter text from unformatted copy in which text is: <ul style="list-style-type: none"> error free draft, edited unedited. 	<p>Types of correspondence:</p> <ul style="list-style-type: none"> letters <ul style="list-style-type: none"> one page multi-page memorandums facsimile cover sheets envelopes/labels. <p>Styles</p> <ul style="list-style-type: none"> informal formal.
Document Manipulation	<ul style="list-style-type: none"> demonstrate appropriate key commands to: <ul style="list-style-type: none"> edit and manipulate text replicate, convert and append files prepare templates/boilerplates paginate documents move through document(s) efficiently by using appropriate cursor movement tools/commands use help functions and references as appropriate. 	Use software-based edit tools such as spell checks, thesaurus, grammar checker.
Document Production	<ul style="list-style-type: none"> clarify the purpose of the correspondence: <ul style="list-style-type: none"> target audience internal/external single/multiple copy 	<p>All documents should be in mailable form:</p> <ul style="list-style-type: none"> no errors correctly formatted.

MODULE INF209: CORRESPONDENCE (continued)

Concept	Specific Learner Expectations	Notes
Document Production	<p><i>The student should:</i></p> <ul style="list-style-type: none"> ● demonstrate appropriate key commands to produce mailable correspondence and memoranda, including the following features: <ul style="list-style-type: none"> - letter parts (date, inside/return addresses, salutations, complimentary closing, name/title, references) - letter styles - punctuation styles - placement - letterhead - mailing notations - address (labels, envelopes) - second page headings - enumerations - display paragraphs - form letters - mail merge - boilerplate ● demonstrate appropriate key commands to print and save documents using alternative formats. 	
Workstation Management	<ul style="list-style-type: none"> ● apply correct workstation position and routines that encourage: <ul style="list-style-type: none"> - good health and safety (posture, positioning of hardware and furniture) - security for hardware, software, supplies and personal work ● demonstrate efficient and appropriate use of time and resources in terms of: <ul style="list-style-type: none"> - start-up procedures - organization of work area - closing procedures - decision making <ul style="list-style-type: none"> ● plan activities ● organize data/information/resources ● consider alternatives - evaluate activities/results ● use related terminology accurately to describe basic processes, procedures and tools. 	

MODULE INF210: REPORTS**Level:** Intermediate**Theme:** Applied Processing**Pre/corequisite:** Word Processing II, Keyboarding III**Module Parameters:** Computer workstation, disk, word-processing software, support resources

Students expand their rate of production as they prepare various reports and manuscripts in mailable form.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Weighting (%)
<i>The student will:</i> <ul style="list-style-type: none">● demonstrate efficient word-processing report/manuscript competence by the:<ul style="list-style-type: none">– production of mailable reports in a variety of formats under time constraints– ability to edit and customize reports● consistently apply workstation routines	<i>Assessment of student achievement will be based on:</i> <ul style="list-style-type: none">● production (enter, format, edit and print) of a multi-page report at an “acceptable” rate of production, given edited, unformatted copy. <i>Assessment Tools (to be developed)</i> Sample Report Test Evaluation Sheet	30
	<ul style="list-style-type: none">● production (enter, format, edit and print) of a multi-page report at an “acceptable” rate of production, given unedited, unformatted copy. <i>Assessment Tools (to be developed)</i> Sample Report Test Report Evaluation Sheet	30
	<ul style="list-style-type: none">● production of a mailable copy of existing documents requiring proofing, editing and formatting. <i>Assessment Tools (to be developed)</i> Sample Editing Text Report Evaluation Sheet	30
	<ul style="list-style-type: none">● meeting or exceeding “acceptable standards” in appropriate workstation routines. <i>Assessment Tools (to be developed)</i> Workstation Routines	10

MODULE INF210: REPORTS (continued)

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Weighting (%)
<p><i>The student will:</i></p> <ul style="list-style-type: none"> demonstrate effort to improve basic competencies. 	<p><i>Assessment of student achievement will be based on:</i></p> <ul style="list-style-type: none"> observations of individual effort and interpersonal interaction during the instructional period, emphasizing: <ul style="list-style-type: none"> managing learning being innovative managing resources. <p><i>Assessment Tools</i> <i>Observation Checklist: Basic Competencies</i></p>	No mark

Concept	Specific Learner Expectations	Notes
Document Creation	<p><i>The student should:</i></p> <ul style="list-style-type: none"> demonstrate efficient and accurate keystroking and software command use to open and name files and to produce mailable documents enter text from formatted copy in which text is: <ul style="list-style-type: none"> error free draft, edited unedited plan layout and enter text from unformatted copy in which text is: <ul style="list-style-type: none"> error free draft, edited unedited. 	
Document Manipulation	<ul style="list-style-type: none"> demonstrate appropriate key commands to: <ul style="list-style-type: none"> edit and manipulate text replicate, convert and append files prepare templates paginate documents move through document(s) efficiently by using appropriate cursor movement tools/commands use help functions and references as appropriate. 	

MODULE INF210: REPORTS (continued)

Concept	Specific Learner Expectations	Notes
Document Production	<p><i>The student should:</i></p> <ul style="list-style-type: none"> ● clarify the purpose of the correspondence: <ul style="list-style-type: none"> – target audience – internal/external – single/multiple copy ● demonstrate appropriate key commands to produce mailable reports, including the following features: <ul style="list-style-type: none"> – title page – titles/headings/subheadings – table of contents – bound/unbound formats – columns – display paragraphs – headers/footers – footnotes – bibliography – appendices ● prepare brief outline summary of report using enumerations ● demonstrate appropriate key commands to print and save documents using alternative formats. 	<p>All documents should be in mailable form:</p> <ul style="list-style-type: none"> ● no errors ● correctly formatted
Workstation Management	<ul style="list-style-type: none"> ● apply efficient workstation position and routines that encourage: <ul style="list-style-type: none"> – good health and safety (posture, positioning of hardware and furniture) – security for hardware, software, supplies and personal work ● demonstrate efficient and appropriate use of time and resources in terms of: <ul style="list-style-type: none"> – start-up procedures – organization of work area – closing procedures ● apply effective decision-making strategies in production assignments: <ul style="list-style-type: none"> – plan activities – organize data, information, resources – consider alternatives – evaluate activities/results ● use related terminology to describe basic processes, procedures and tools. 	

MODULE INF211: TABLES/FORMS**Level: Intermediate****Theme: Applied Processing****Pre/corequisite: Word Processing II, Keyboarding III****Module Parameters: Computer workstation, disk, word-processing software, support resources**

Students expand their rate of document production as they prepare various tables/forms in mailable form.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Weighting (%)
<i>The student will:</i> <ul style="list-style-type: none">● demonstrate efficient word-processing tables/forms competence by the:<ul style="list-style-type: none">- production of mailable tables in a variety of formats under time constraints- ability to design a mailable form for a specific purpose and audience- ability to edit, modify and customize tables/forms● consistently apply workstation routines	<i>Assessment of student achievement will be based on:</i> <ul style="list-style-type: none">● production (enter, format, edit and print) of a variety of tables/forms at an "acceptable" rate of production, given edited, unformatted copy. <i>Assessment Tools (to be developed)</i> <i>Sample Tables/Forms Test</i> <i>Tables/Forms Evaluation Sheet</i>● production (enter, format, edit and print) of a set of tables/forms at an "acceptable" rate of production, given unedited, unformatted copy. <i>Assessment Tools (to be developed)</i> <i>Sample Tables/Forms Test</i> <i>Tables/Forms Evaluation Sheet</i>● production of a mailable copy of existing documents requiring proofing, editing and formatting. <i>Assessment Tools (to be developed)</i> <i>Sample Editing Test</i> <i>Tables/Forms Evaluation Sheet</i>● meeting or exceeding "acceptable standards" in appropriate workstation routines. <i>Assessment Tools (to be developed)</i> <i>Workstation Routines</i>	 30 30 30 10

MODULE INF211: TABLES/FORMS (continued)

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Weighting (%)
<p><i>The student will:</i></p> <ul style="list-style-type: none"> demonstrate effort to improve basic competencies. 	<p><i>Assessment of student achievement will be based on:</i></p> <ul style="list-style-type: none"> observations of individual effort and interpersonal interaction during the instructional period, emphasizing: <ul style="list-style-type: none"> managing learning managing resources. <p><i>Assessment Tools</i> <i>Observation Checklist: Basic Competencies</i></p>	

Concept	Specific Learner Expectations	Notes
Document Creation	<p><i>The student should:</i></p> <ul style="list-style-type: none"> demonstrate efficient and accurate keystroking and software command use to open and name files and to produce mailable documents enter text from formatted copy in which text is: <ul style="list-style-type: none"> error free draft, edited unedited plan layout and enter text from unformatted copy in which text is: <ul style="list-style-type: none"> error free draft, edited unedited. 	
Document Manipulation	<ul style="list-style-type: none"> demonstrate appropriate key commands to: <ul style="list-style-type: none"> edit, manipulate and delete text replicate, convert and append files move through document(s) efficiently by using appropriate cursor movement tools/commands use help functions and references as appropriate. 	

MODULE INF211: TABLES/FORMS (continued)

Concept	Specific Learner Expectations	Notes
Document Production	<p><i>The student should:</i></p> <ul style="list-style-type: none"> ● demonstrate appropriate key commands to produce mailable single and multi-column tables, including the following features: <ul style="list-style-type: none"> – headings, subheadings (multi-line) – boxed, ruled – special features – rulers/tabs – supplemental data (e.g., footnotes) – parallel columns – merged table (display paragraphs) – table specifications (if available) – cell attributes (fonts, justification) – borders – math calculations ● demonstrate appropriate key commands to enter data and produce mailable forms, including the following examples: <ul style="list-style-type: none"> – interoffice memorandums – facsimile cover sheets – invoices – purchase orders – credit memos – application for employment – account statements ● plan/create templates for commonly used forms (purchase order, statement, etc.) ● demonstrate appropriate key commands to print and save documents using alternative formats. 	<p>All document should be in mailable form:</p> <ul style="list-style-type: none"> ● no errors ● correctly formatted.

MODULE INF211: TABLES/FORMS (continued)

Concept	Specific Learner Expectations	Notes
Workstation Management	<p><i>The student should:</i></p> <ul style="list-style-type: none"> ● apply efficient workstation position and routines that encourage: <ul style="list-style-type: none"> – good health and safety (posture, positioning of hardware and furniture) – security for hardware, software, supplies and personal work ● demonstrate efficient and appropriate use of time and resources in terms of: <ul style="list-style-type: none"> – start-up procedures – organization of work area – closing procedures ● apply effective decision-making strategies in production assignments: <ul style="list-style-type: none"> – plan activities – organize data, information, resources – consider alternatives – evaluate activities/results ● use related terminology to describe basic processes, procedures and tools. 	

MODULE INF212: DOCUMENT PRODUCTION I**Level: Intermediate****Theme: System Operations****Pre/corequisite: Keyboarding III, Word Processing II, Spreadsheet I, Database I****Module Parameters: Computer workstation, disk, word-processing software, support resources**

This module provides an opportunity for students to develop document production skills requiring the integration of data, text and graphics.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Weighting (%)
<p><i>The student will:</i></p> <ul style="list-style-type: none"> demonstrate word-processing and data management systems/graphics software integration competence by: <ul style="list-style-type: none"> producing mailable word-processing documents that integrate data, text and presentation graphics in a variety of specific applications consistently apply workstation routines demonstrate effort to improve basic competencies. 	<p><i>Assessment of student achievement will be based on:</i></p> <ul style="list-style-type: none"> production (enter, format, edit and print) of documents that integrate data, text and graphics. <i>Assessment Tools (to be developed)</i> <i>Sample Document Production Test</i> <i>Document Evaluation Sheet</i> production (enter, format, edit and print) of documents that integrate data, text and graphic at an "acceptable" rate of production, given unedited, unformatted copy. <i>Assessment Tools (to be developed)</i> <i>Sample Document Production Test</i> <i>Document Evaluation Sheet</i> production of mailable copy of existing documents requiring proofing, editing and formatting. <i>Assessment Tools (to be developed)</i> <i>Sample Editing Test</i> <i>Document Evaluation Sheet</i> meeting or exceeding "acceptable standards" in appropriate workstation routines. <i>Assessment Tools (to be developed)</i> <i>Workstation Routines</i> observations of individual effort and interpersonal interaction during the instructional period, emphasizing: <ul style="list-style-type: none"> managing learning managing resources. <i>Assessment Tools</i> <i>Observation Checklist: Basic Competencies</i> 	<p>30</p> <p>30</p> <p>30</p> <p>10</p> <p>No mark</p>

MODULE INF212: DOCUMENT PRODUCTION I (continued)

Concept	Specific Learner Expectations	Notes
Document Creation	<p><i>The student should:</i></p> <ul style="list-style-type: none"> ● follow instructions to customize/personalize existing text and data files ● load, redesign/reformat, modify existing templates/files containing information from database, spreadsheet, presentation graphics files ● apply word-processing, database, spreadsheet commands as appropriate to import and merge documents into word-processing file ● manipulate word-processing, database, spreadsheet, graphics software to produce mailable documents from drafts: <ul style="list-style-type: none"> - edited, formatted - edited, unformatted - unedited, unformatted. 	
Document Production	<ul style="list-style-type: none"> ● format/revise documents ● clarify the purpose of the document: <ul style="list-style-type: none"> - target audience - single/multiple/presentation copy ● print and save documents. 	
Workstation Management	<ul style="list-style-type: none"> ● apply efficient workstation position and routines that encourage: <ul style="list-style-type: none"> - good health and safety (posture, positioning of hardware and furniture) - security for hardware, software, supplies and personal work ● demonstrate efficient and appropriate use of time and resources in terms of: <ul style="list-style-type: none"> - start-up procedures - organization of work area - closing procedures ● apply effective decision-making strategies in production assignments: <ul style="list-style-type: none"> - plan activities - organize data, information, resources - consider alternatives - evaluate activities/results ● use related terminology to describe basic processes, procedures and tools. 	

MODULE INF213: MULTIMEDIA AUTHORIZING I**Level: Intermediate****Theme: Dynamic Environment****Pre/corequisite: Graphics Tools****Module Parameters: Computer workstation, software, support resources**

This module introduces multimedia software and an opportunity to develop basic authoring competence by accessing and integrating software resident text, video, audio clips.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Weighting (%)
<p><i>The student will:</i></p> <ul style="list-style-type: none"> ● demonstrate multimedia authoring competence by using software resident text, video, audio clips: <ul style="list-style-type: none"> – use software-specific commands to access and manipulate text video and audio – develop multimedia presentation ● consistently apply workstation routines ● demonstrate effort to improve basic competencies. 	<p><i>Assessment of student achievement will be based on:</i> given available school, jurisdiction, community partnership resources and without direct assistance:</p> <ul style="list-style-type: none"> ● identify, access and modify textual material ● identify, access and modify video clips ● identify, access and modify audio clips ● the production a one-minute multimedia presentation that includes text, video and audio with individual components supporting a common theme <p><i>Assessment Tools (to be developed)</i> <i>Exemplar MA1</i></p> <ul style="list-style-type: none"> ● meeting or exceeding “acceptable standards” in appropriate workstation routines. <p><i>Assessment Tools (to be developed)</i> <i>Workstation Routines</i></p> <ul style="list-style-type: none"> ● observations of individual effort and interpersonal interaction during the instructional period, emphasizing: <ul style="list-style-type: none"> – managing learning – managing resources. <p><i>Assessment Tools</i> <i>Observation Checklist: Basic Competencies</i></p>	<p>15</p> <p>15</p> <p>15</p> <p>45</p> <p>10</p> <p>No mark</p>

MODULE INF213: MULTIMEDIA AUTHORIZING I (continued)

Concept	Specific Learner Expectations	Notes
Multimedia Authoring Skills	<p><i>The student should:</i></p> <ul style="list-style-type: none"> ● identify, locate and access resident text, video and audio files ● perform teacher-specified software commands and functions ● identify and select software commands for predetermined purpose (e.g., image creation, sequencing, timing rates) ● plan and structure a one-minute multimedia presentation on a common theme. 	
Multimedia Authoring Applications	<ul style="list-style-type: none"> ● apply software commands ● create/save multimedia authored file ● key/import, customize/modify text, video, audio source clips ● establish window arrangements (characteristic, parameters) ● address the following clip considerations: <ul style="list-style-type: none"> – name, type, frame size, duration, sound quality ● edit the sequence (text, video, audio tracks) ● edit construction window, clip window ● preview segments, tracks, sequence ● display output ● print/export file(s) ● run project sequence. 	

MODULE INF213: MULTIMEDIA AUTHORING I (continued)

Concept	Specific Learner Expectations	Notes
Workstation Management	<p><i>The student should:</i></p> <ul style="list-style-type: none"> ● apply efficient workstation position and routines that encourage: <ul style="list-style-type: none"> – good health and safety (posture, positioning of hardware and furniture) – security for hardware, software, supplies and personal work ● demonstrate efficient and appropriate use of time and resources in terms of: <ul style="list-style-type: none"> – start-up procedures – organization of work area – closing procedures ● apply effective decision-making strategies in production assignments: <ul style="list-style-type: none"> – plan activities – organize data, information, resources – consider alternatives – evaluate activities/results ● use related terminology to describe basic processes, procedures and tools. 	

MODULE INF214: PROCESS CONTROL**Level: Intermediate****Theme: Dynamic Environment****Pre/corequisite: Computer Operations**
(Hypermedia Tools recommended pre/corequisite)**Module Parameters: Computer workstation, software, support resources**

Students develop skills in robotics/simulation software control by creating/modifying/using programs that incorporate computer-controlled movements/events in robotics/simulation activities/applications.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Weighting (%)
<p><i>The student will:</i></p> <ul style="list-style-type: none"> demonstrate basic electronic process control software competence by: <ul style="list-style-type: none"> explaining the theory and processes used to control a robot and/or other simulation construct a robot or cause a robot to function as intended through computer control consistently apply workstation routines demonstrate effort to improve basic competencies. 	<p><i>Assessment of student achievement will be based on:</i></p> <ul style="list-style-type: none"> given available school, jurisdiction, community partnership resources: <ul style="list-style-type: none"> demonstrate and explain basic mechanics and principles of robotics and robotic control. <p><i>Assessment Tools (to be developed)</i> <i>Exemplar</i></p> design, assemble and program a robot to perform a specific task. <p><i>Assessment Tools (to be developed)</i> <i>Exemplar</i></p> demonstrate robot functionality. <p><i>Assessment Tools (to be developed)</i> <i>Exemplar</i></p> 	25
		50
		15
	<ul style="list-style-type: none"> meeting or exceeding “acceptable standards” in appropriate workstation routines. <p><i>Assessment Tools (to be developed)</i> <i>Workstation Routines</i></p> 	10
	<ul style="list-style-type: none"> observations of individual effort and interpersonal interaction during the instructional period, emphasizing: <ul style="list-style-type: none"> managing learning being innovative managing resources. <p><i>Assessment Tools</i> <i>Observation Checklist: Basic Competencies</i></p> 	No mark

MODULE INF214: PROCESS CONTROL (continued)

Concept	Specific Learner Expectations	Notes
Computer Operations Skills	<p><i>The student should:</i></p> <ul style="list-style-type: none"> ● identify, access and use teacher -pecified commands and functions for controlling robots ● use commands and functions to control robot(s) in teacher-specified exercises. 	
Robotics/Simulation Project	<ul style="list-style-type: none"> ● design and implement a robotics and/or other computer simulation by following a procedure such as: <ul style="list-style-type: none"> - identify software/application(s) - determine/design algorithm parameters - collect required support resources - apply animation/robotics software commands - load/create/customize/modify robotics/simulation files(s) - input data - design/define project parameters <ul style="list-style-type: none"> ● flowchart sequence - enter data <ul style="list-style-type: none"> ● key, load data ● create/import/scan graphic elements - access/manipulate graphic element/robot - create background <ul style="list-style-type: none"> ● edit/modify/update data/information - use residential commands - link files - incorporate text (alphabetic, numeric), graphics, motion, sound - output animation/robotics activities ● demonstrate animation/robotic capability ● display/print/export <ul style="list-style-type: none"> - animation/robotics file. 	

MODULE INF214: PROCESS CONTROL (continued)

Concept	Specific Learner Expectations	Notes
Workstation Management	<p><i>The student should:</i></p> <ul style="list-style-type: none"> ● apply efficient workstation position and routines that encourage: <ul style="list-style-type: none"> – good health and safety (posture, positioning of hardware and furniture) – security for hardware, software, supplies and personal work ● demonstrate efficient and appropriate use of time and resources in terms of: <ul style="list-style-type: none"> – start-up procedures – organization of work area – closing procedures ● apply effective decision-making strategies in production assignments: <ul style="list-style-type: none"> – plan activities – organize data, information, resources – consider alternatives – evaluate activities/results ● use related terminology to describe basic processes, procedures and tools. 	

MODULE INF215: PROGRAMMING II**Level: Intermediate****Prerequisite: Programming I****Module Parameters: Access to appropriate computer equipment and software.**

Students have an opportunity to increase programming skills by designing and generating programming code to handle decision-making and repetitive processes.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Weighting (%)
<i>The student will:</i> <ul style="list-style-type: none">● demonstrate basic computer programming skill by:<ul style="list-style-type: none">– creating algorithms to solve problems involving decision making and iteration– constructing computer programs involving decision making and iterative processes	<i>Assessment of student achievement will be based on:</i> <ul style="list-style-type: none">● development of a program that demonstrates efficient use of algorithms and language syntax. The program will:<ul style="list-style-type: none">– distinguish conditions within problems that require decision-making and repetitive calculations/operations– examine and create problems in which decision-making conditions exist– examine the repetitive pattern that exists in the problem and distinguish between pre-test and post-test iterative structures and predetermined iterative conditions– examine and create problems that define a predetermined number of repetitions– examine and create problems requiring pre-check/post-check iterative structures.– construct commands that will increment and decrement variable values based on patterns recognized in the problem– differentiate and apply language-specific reserved words for predefined, pre-check and post-check iterative operations– differentiate and apply language-reserved words for decision-making structures– differentiate and apply language-specific relational/logic operators in decision-making and iterative structures. <i>Assessment Tools</i> <i>Sample Assignment: Programming 2A</i>	45
● consistently apply workstation routines	● meeting or exceeding “acceptable standards” in appropriate workstation routines. <i>Assessment Tools (to be developed)</i> <i>Workstation Routines</i>	10

MODULE INF215: PROGRAMMING II (continued)

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Weighting (%)
<p><i>The student will:</i></p> <ul style="list-style-type: none"> demonstrate effort to improve basic competencies. 	<p><i>Assessment of student achievement will be based on:</i></p> <ul style="list-style-type: none"> observations of individual effort and interpersonal interaction during the instructional period, emphasizing: <ul style="list-style-type: none"> managing learning being innovative managing resources. <p><i>Assessment Tools</i> <i>Observation Checklist: Basic Competencies</i></p>	No mark

Part A: Procedure-oriented Programming

Concept	Specific Learner Expectations	Notes
Algorithms	<p><i>The student should:</i></p> <ul style="list-style-type: none"> identify/describe the problem list each step required to solve the problem develop the appropriate logic to achieve the solution apply structured programming constructs to create a schematic/flowchart/pseudocode indicating how the solution will be achieved (IPO/HIPO). 	Programmers design algorithms and use either a procedure-oriented or object-oriented language structure to code instructions for specific and unique computer tasks.
Computer Language Syntax	<ul style="list-style-type: none"> use constants, variables, data structures, operands use reserved words, commands, statements, operators input data using reserved words: <ul style="list-style-type: none"> embedded/read/enter data process data: <ul style="list-style-type: none"> calculations/manipulations/decision control/branching/looping output data using reserved words: <ul style="list-style-type: none"> text/data/graphics. 	
Structured Computer Programming Applications	<ul style="list-style-type: none"> access appropriate computer language resource support examine decision-making processes and conditions when used apply programming syntax to decision-making processes 	Decision control (conditional statements). Branching. Looping.

MODULE INF215: PROGRAMMING II (continued)

Concept	Specific Learner Expectations	Notes
Structured Computer Programming Applications (continued)	<p><i>The student should:</i></p> <ul style="list-style-type: none"> ● code simple decision-making commands involving a variety of conditions ● discuss and use nested conditional statements ● examine iterative structures and conditions when used ● apply programming syntax to iterative processes ● code simple repetitive commands involving a variety of conditions, including nested repetitive structures ● discuss appropriate use of unconditional branching ● identify problem/develop algorithm ● design output format ● key/code the instructions ● test run program ● debug/edit program ● execute program ● document program ● assess activities/results. 	<p>Repetition. Iteration. Looping.</p> <p>Counting, specific conditions, incrementing, summation, boolean relational operators.</p>
Workstation Management	<ul style="list-style-type: none"> ● apply efficient workstation position and routines that encourage: <ul style="list-style-type: none"> – good health and safety (posture, positioning of hardware and furniture) – security for hardware, software, supplies and personal work ● demonstrate efficient and appropriate use of time and resources in terms of: <ul style="list-style-type: none"> – start-up procedures – organization of work area – closing procedures ● apply effective decision-making strategies in production assignments: <ul style="list-style-type: none"> – plan activities – organize data, information, resources – consider alternatives – evaluate activities/results ● use related terminology to describe basic processes, procedures and tools. 	

MODULE INF215: PROGRAMMING II (continued)

Part B: Object-oriented Programming

Concept	Specific Learner Expectations	Notes
Algorithms/Classes	<p><i>The student should:</i></p> <ul style="list-style-type: none"> ● identify/describe the problem ● list each step required to solve the problem ● develop the appropriate logic to achieve the solution ● apply structured programming constructs to create a schematic/flowchart pseudocode indicating how the solution will be achieved (IPO/HIPO). 	
Computer Language Syntax	<ul style="list-style-type: none"> ● use constants, variables, data structures, operands ● use reserved words, commands, statements, operators, or predefined classes ● input data using reserved words or predefined classes ● process data ● output data using reserved words or predefined classes 	<p>Embedded/read/enter data.</p> <p>Calculations/ manipulations/decision control/ branching/ looping.</p> <p>Text/data/graphics.</p>
Structured Computer Programming Applications	<ul style="list-style-type: none"> ● access appropriate computer language resource support ● examine decision-making processes and conditions when used ● apply programming syntax to decision-making processes ● code simple decision-making commands involving a variety of conditions ● discuss and use nested conditional statements ● examine iterative structures and conditions when used ● apply programming syntax to iterative processes: ● code simple repetitive commands involving a variety of conditions, including nested repetitive structures 	<p>Decision control (conditional statements). Branching. Looping.</p> <p>Repetition. Iteration. Looping. Counting, specific conditions, incrementing, summation, boolean relational operators.</p>

MODULE INF215: PROGRAMMING II (continued)

Concept	Specific Learner Expectations	Notes
Structured Computer Programming Applications (continued)	<p><i>The student should:</i></p> <ul style="list-style-type: none"> ● discuss appropriate use of unconditional branching ● identify problem/develop algorithm ● design output format ● key/code the instructions ● test run program ● debug/edit program ● execute program ● document program ● assess activities/results. 	
Workstation Management	<ul style="list-style-type: none"> ● apply efficient workstation position and routines that encourage: <ul style="list-style-type: none"> – good health and safety (posture, positioning of hardware and furniture) – security for hardware, software, supplies and personal work ● demonstrate efficient and appropriate use of time and resources in terms of: <ul style="list-style-type: none"> – start-up procedures – organization of work area – closing procedures ● apply effective decision-making strategies in production assignments: <ul style="list-style-type: none"> – plan activities – organize data, information, resources – consider alternatives – evaluate activities/results ● use related terminology to describe basic processes, procedures and tools. 	

MODULE INF216: PROGRAMMING III**Level:** Intermediate**Prerequisite:** Programming II**Module Parameters:** Access to appropriate computer equipment and software

Students have an opportunity to increase programming skills by using sub-program structures.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Weighting (%)
<p><i>The student will:</i></p> <ul style="list-style-type: none"> restructure existing computer programs by: <ul style="list-style-type: none"> using sub-program structures revising and constructing computer programs involving sub-program structures modify the algorithm to isolate the component operations/processes that were incorporated into the sub-program structure consistently apply workstation routines demonstrate effort to improve basic competencies. 	<p><i>Assessment of student achievement will be based on:</i></p> <ul style="list-style-type: none"> developing a program that demonstrates efficient use of algorithms and language syntax. The program will: <ul style="list-style-type: none"> assess components of problems which may be isolated in separate sub-programs distinguish between criteria for selection of appropriate sub-program structures distinguish between local and global variables. <p><i>Assessment Tools (to be developed)</i></p> <ul style="list-style-type: none"> revise and construct programs that use local and global variables revise and construct programs that use language-specific sub-program structures based on parameters to be passed revise and construct programs that use language-specific sub-program structures involving one- and two-way parameter passing revise and construct programs using nested sub-programming structures. <p><i>Assessment Tools</i> <i>Sample Assignment: Programming 3A</i></p> <ul style="list-style-type: none"> meeting or exceeding "acceptable standards" in appropriate workstation routines. <p><i>Assessment Tools (to be developed)</i> <i>Workstation Routines</i></p> <ul style="list-style-type: none"> observations of individual effort and interpersonal interaction during the instructional period, emphasizing: <ul style="list-style-type: none"> managing learning being innovative managing resources. <p><i>Assessment Tools</i> <i>Observation Checklist: Basic Competencies</i></p>	<p>30</p> <p>60</p> <p>10</p> <p>No mark</p>

MODULE INF216: PROGRAMMING III (continued)

Part A. Procedure-oriented Programming

Concept	Specific Learner Expectations	Notes
Algorithms	<p><i>The student should:</i></p> <ul style="list-style-type: none"> ● modify an existing algorithm(s) ● identify/describe the problem ● list each step required to solve the problem ● develop the appropriate logic to achieve the solution ● apply structured programming constructs to modify/create a schematic/flowchart/pseudocode indicating how the solution will be achieved (IPO/HIPO). 	Programmers design algorithms and use either a procedure-oriented or object-oriented language structure to code instructions for specific and unique computer tasks.
Computer Language Syntax	<ul style="list-style-type: none"> ● use constants, variables, data structures, operands ● use reserved words, commands, statements, operators, sub-routines, predefined and user-defined functions ● input data using reserved words: <ul style="list-style-type: none"> – embedded/read/enter data ● process data: <ul style="list-style-type: none"> – calculations/manipulations/decision control/branching/looping/sub-routines/functions ● edit/modify existing code ● output/link program segments/program using reserved words: <ul style="list-style-type: none"> – text/data/graphics. 	
Structured Computer Program Applications	<ul style="list-style-type: none"> ● access appropriate computer language resource support ● examine pre-coded instructions used as templates: <ul style="list-style-type: none"> – why are they used – when used ● code simple instructions to utilize templates/library routines ● recode existing programs treating text/graphics as sub-programs ● discuss use of procedures/sub-routines/functions ● describe purpose/use of sub-programs/ pre-defined functions ● utilize sub-routines/functions in program segments 	<p>Reduces coding/ debugging Under what conditions?</p> <p>Repeating patterns of code.</p>

MODULE INF216: PROGRAMMING III (continued)

Concept	Specific Learner Expectations	Notes
Structured Computer Program Applications (continued)	<p><i>The student should:</i></p> <ul style="list-style-type: none"> ● access/create program segments utilizing complex procedures/functions: <ul style="list-style-type: none"> – use parameters/operators to customize repeating code patterns – one- and two-way parameter passing – nested procedures/functions – scope charts – local/global variables ● apply sub-routines/functions in a program ● develop algorithm ● design output format ● key/code the instructions ● test run program ● debug/edit program ● execute program ● document program ● assess activities/results. 	
Workstation Management	<ul style="list-style-type: none"> ● apply efficient workstation position and routines that encourage: <ul style="list-style-type: none"> – good health and safety (posture, positioning of hardware and furniture) – security for hardware, software, supplies and personal work ● demonstrate efficient and appropriate use of time and resources in terms of: <ul style="list-style-type: none"> – start-up procedures – organization of work area – closing procedures ● apply effective decision-making strategies in production assignments: <ul style="list-style-type: none"> – plan activities – organize data, information, resources – consider alternatives – evaluate activities/results ● use related terminology to describe basic processes, procedures and tools. 	

MODULE INF216: PROGRAMMING III (continued)

Part B: Object-oriented Programming

Concept	Specific Learner Expectations	Notes
Algorithms/Classes	<p><i>The student should:</i></p> <ul style="list-style-type: none"> ● modify an existing algorithm(s) ● identify/describe the problem ● list each step required to solve the problem ● develop the appropriate logic to achieve the solution ● apply structured programming constructs to modify/create a schematic/flowchart/pseudocode indicating how the solution will be achieved (IPO/HIPO). 	Programmers design algorithms and use either a procedure-oriented or object-oriented language structure to code instructions for specific and unique computer tasks.
Computer Language Syntax	<ul style="list-style-type: none"> ● use constants, variables, data structures, operands ● use reserved words, commands, statements, operators, sub-routines, predefined and user-defined functions ● input data using reserved words: <ul style="list-style-type: none"> – embedded/read/enter data ● process data: <ul style="list-style-type: none"> – calculations/manipulations/decision control/branching/looping/sub-routines/functions ● edit/modify existing code ● output/link program segments/program using reserved words: <ul style="list-style-type: none"> – text/data/graphics. 	
Structured Computer Program Applications	<ul style="list-style-type: none"> ● access appropriate computer language resource support ● examine pre-coded instructions used as templates: <ul style="list-style-type: none"> – why are they used – when used ● code simple instructions to utilize templates/library routines/library classes ● recode existing programs treating text/graphics as sub-programs ● discuss use of procedures/sub-routines/functions ● describe purpose/use of sub-programs/ pre-defined functions ● utilize sub-routines/functions in program segments 	<p>Reduces coding/ debugging Under what conditions?</p> <p>Repeating patterns of code.</p>

MODULE INF216: PROGRAMMING III (continued)

Concept	Specific Learner Expectations	Notes
Structured Computer Program Applications (continued)	<p><i>The student should:</i></p> <ul style="list-style-type: none"> ● access/create program segments utilizing complex procedures/functions: <ul style="list-style-type: none"> – use parameters/operators to customize repeating code patterns – one- and two-way parameter passing – nested procedures/functions – scope charts – local/global variables ● apply sub-routines/functions in a program ● develop algorithm ● design output format ● key/code the instructions ● test run program ● debug/edit program ● execute program ● document program ● assess activities/results. 	
Workstation Management	<ul style="list-style-type: none"> ● apply efficient workstation position and routines that encourage: <ul style="list-style-type: none"> – good health and safety (posture, positioning of hardware and furniture) – security for hardware, software, supplies and personal work ● demonstrate efficient and appropriate use of time and resources in terms of: <ul style="list-style-type: none"> – start-up procedures – organization of work area – closing procedures ● apply effective decision-making strategies in production assignments: <ul style="list-style-type: none"> – plan activities – organize data, information, resources – consider alternatives – evaluate activities/results ● use related terminology to describe basic processes, procedures and tools. 	

MODULE INF217: PROGRAMMING IV**Level: Intermediate****Prerequisite: Programming III****Module Parameters: Access to appropriate computer equipment and software**

Students have an opportunity to increase programming skills by developing and using derived data types.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Weighting (%)
<p><i>The student will:</i></p> <ul style="list-style-type: none"> ● demonstrate evolving computer programming skill by: <ul style="list-style-type: none"> – creating algorithms to solve problems supporting derived data types (arrays, character strings, records, sets) – create structured programs use derived data types ● consistently apply workstation routines ● demonstrate effort to improve basic competencies. 	<p><i>Assessment of student achievement will be based on:</i></p> <ul style="list-style-type: none"> ● development of a program that demonstrates efficient use of algorithms and language syntax. The program will: <ul style="list-style-type: none"> – categorize problems requiring the use of derived data types – distinguish characteristics of differing derived data types – construct appropriate derived data types based upon problem parameters – create programs using predefined language-specific sub-programs to perform operations or derived data type. <p><i>Assessment Tools</i> <i>Sample Assignment: Programming 4A (Procedure-oriented) or</i> <i>Sample Assignment: Programming 4B (Object-oriented)</i></p>	<p>30</p> <p>60</p>
	<ul style="list-style-type: none"> ● meeting or exceeding “acceptable standards” in appropriate workstation routines. <p><i>Assessment Tools (to be developed)</i> <i>Workstation Routines</i></p>	10
	<ul style="list-style-type: none"> ● Observations of individual effort and interpersonal interaction during the instructional period, emphasizing: <ul style="list-style-type: none"> – managing learning – being innovative – managing resources. <p><i>Assessment Tools</i> <i>Observation Checklist: Basic Competencies</i></p>	No mark

MODULE INF217: PROGRAMMING IV (continued)

Part A: Procedure-oriented Programming

Concept	Specific Learner Expectations	Notes
Algorithms	<p><i>The student should:</i></p> <ul style="list-style-type: none"> ● modify an existing algorithm(s) ● identify/describe the problem ● list each step required to solve the problem/list the required components of the data structure ● develop the appropriate logic to achieve the solution ● apply structured programming constructs to modify/create a schematic/flowchart/pseudocode indicating how the solution will be achieved (IPO/HIPO). 	Programmers design algorithms and use either a procedure-oriented or object-oriented language structure to code instructions for specific and unique computer tasks.
Computer Language Syntax	<ul style="list-style-type: none"> ● use constants, variables, data structures, operands ● use reserved words, commands, statements, operators, sub-routines, functions ● use single and multiple dimensioned arrays, character strings, records and sets ● input data using reserved words: <ul style="list-style-type: none"> – embed/read/enter data – create/assign values to derived data types ● process data: <ul style="list-style-type: none"> – calculations/manipulations/decision control/branching/looping/sub-routines/ functions ● edit/modify existing code ● output/link programs or segments of programs using reserved words: <ul style="list-style-type: none"> – text/data/graphics. 	
Structured Computer Programming Applications	<ul style="list-style-type: none"> ● access appropriate computer language resource support ● describe purpose/use of derived data types ● discuss the need for/advantages of derived data types ● utilize derived data types in program segments ● access/create program segments utilizing derived data types <ul style="list-style-type: none"> – single/multiple dimensioned arrays – character strings – records/sets 	

MODULE INF217: PROGRAMMING IV (continued)

Concept	Specific Learner Expectations	Notes
Structured Computer Programming Applications (continued)	<p><i>The student should:</i></p> <ul style="list-style-type: none"> ● create program segments that access data stored in derived data types ● create program segments that utilize pre-defined functions/procedures to process information stored in derived data types ● apply derived types in a program ● develop algorithm ● design output format ● key/code the instructions ● test run program ● debug/edit program ● execute program ● document program ● assess activities/results. 	
Workstation Management	<ul style="list-style-type: none"> ● apply efficient workstation position and routines that encourage: <ul style="list-style-type: none"> – good health and safety (posture, positioning of hardware and furniture) – security for hardware, software, supplies and personal work ● demonstrate efficient and appropriate use of time and resources in terms of: <ul style="list-style-type: none"> – start-up procedures – organization of work area – closing procedures ● apply effective decision-making strategies in production assignments: <ul style="list-style-type: none"> – plan activities – organize data, information, resources – consider alternatives – evaluate activities/results ● use related terminology to describe basic processes, procedures and tools. 	

MODULE INF217: PROGRAMMING IV (continued)

Part B: Object -oriented Programming

Concept	Specific Learner Expectations	Notes
Algorithms/Classes	<p><i>The student should:</i></p> <ul style="list-style-type: none"> ● modify an existing algorithm(s) ● identify/describe the problem ● list each step required to solve the problem/list the required components of the data structure ● develop the appropriate logic/data components to achieve the solution ● apply structured programming constructs to modify/create a schematic/flowchart/pseudocode indicating how the solution will be achieved (IPO/HIPO). 	
Computer Language Syntax	<ul style="list-style-type: none"> ● use constants, variables, data structures, operands ● use reserved words, commands, statements, operators, sub-routines, functions ● use single and multiple dimensioned arrays, character strings, records/sets/structures/pointers/classes ● input data using reserved words: <ul style="list-style-type: none"> – embed/read/enter data – create/assign values/operations to derived data types ● process data: <ul style="list-style-type: none"> – calculations/manipulations/decision control/branching/looping – sub-routines/ functions/classes/objects ● edit/modify existing code ● output/link programs or segments of programs using reserved words or predefined classes: <ul style="list-style-type: none"> – text/data/graphics. 	
Structured Computer Programming	<ul style="list-style-type: none"> ● access appropriate computer language resource support ● describe purpose/use of derived data types ● discuss the need for/advantages of derived data types ● utilize derived data types in program segments 	

MODULE INF217: PROGRAMMING IV (continued)

Concept	Specific Learner Expectations	Notes
Structured Computer Programming (continued)	<p><i>The student should:</i></p> <ul style="list-style-type: none"> ● access/create program segments utilizing derived data types <ul style="list-style-type: none"> – single/multiple dimensioned arrays – character strings – records/sets/structures/pointers/classes ● create program segments that access data/members of derived data types ● create program segments that utilize pre-defined functions/procedures and user-defined functions/procedures to process information stored in derived data types ● apply derived types in a program ● develop algorithm/classes ● design output format ● key/code the instructions ● test run program ● debug/edit program ● execute program ● document program ● assess activities/results. 	
Workstation Management	<ul style="list-style-type: none"> ● apply efficient workstation position and routines that encourage: <ul style="list-style-type: none"> – good health and safety (posture, positioning of hardware and furniture) – security for hardware, software, supplies and personal work ● demonstrate efficient and appropriate use of time and resources in terms of: <ul style="list-style-type: none"> – start-up procedures – organization of work area – closing procedures ● apply effective decision-making strategies in production assignments: <ul style="list-style-type: none"> – plan activities – organize data, information, resources – consider alternatives – evaluate activities/results ● use related terminology to describe basic processes, procedures and tools. 	

MODULE INF218: PROGRAMMING V**Level: Intermediate****Prerequisite: Programming IV****Module Parameters: Access to appropriate computer equipment and software**

Students have an opportunity to increase programming skills by developing and using recursive, sorting and merging algorithms.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Weighting (%)
<p><i>The student will:</i></p> <ul style="list-style-type: none"> ● demonstrate evolving computer programming skills by: <ul style="list-style-type: none"> – examining/creating different recursive, sorting, searching and merging algorithms – revising/creating structured programs containing operations on derived data types ● consistently apply workstation routines ● demonstrate effort to improve basic competencies. 	<p><i>Assessment of student achievement will be based on:</i></p> <ul style="list-style-type: none"> ● development of a program that demonstrates efficient use of algorithms and language syntax. The program will: <ul style="list-style-type: none"> – examine/create problems requiring sorting, searching and merging algorithms – examine/create problems requiring recursive algorithms – identify the merits (efficiencies) of different sorting, searching and merging algorithms – create and revise programs using standard sort routines (bubble sort, quick sort, insertion sort, selection sort, . . .) – create and revise programs to search sorted and unsorted data (linear and binary searches) – create and revise programs to merge sorted data – create and revise programs to use iterative and recursive routines. <p><i>Assessment Tools (to be developed)</i> <i>Sample Assignment</i></p>	30
	<ul style="list-style-type: none"> ● meeting or exceeding “acceptable standards” in appropriate workstation routines. <p><i>Assessment Tools (to be developed)</i> <i>Workstation Routines</i></p>	60
	<ul style="list-style-type: none"> ● observations of individual effort and interpersonal interaction during the instructional period, emphasizing: <ul style="list-style-type: none"> – managing learning – being innovative – managing resources. <p><i>Assessment Tools</i> <i>Observation Checklist: Basic Competencies</i></p>	10
		No mark

MODULE INF218: PROGRAMMING V (continued)

Part A: Procedure-oriented Programming

Concept	Specific Learner Expectations	Notes
Algorithms	<p><i>The student should:</i></p> <ul style="list-style-type: none"> ● modify existing/develop new algorithms ● identify/describe the problem ● list each step required to solve the problem/list the required components of the data structure ● develop the appropriate logic/data components required to achieve the solution ● develop the appropriate methods of accessing data in derived data types ● compare iterative and recursive routines ● measure the efficiency of comparable routines ● apply structured programming constructs to modify/create a schematic/flowchart/pseudocode indicating how the solution will be achieved (IPO/HIPO). 	Programmers design algorithms and use either a procedure-oriented or object-oriented language structure to code instructions for specific and unique computer tasks.
Computer Language Syntax	<ul style="list-style-type: none"> ● use constants, variables, data structures, operands ● use reserved words, commands, statements, operators, sub-routines, functions ● use language specific derived data types ● input data using reserved words: <ul style="list-style-type: none"> – embed/read/enter data – create/assign values to derived data types ● process data: <ul style="list-style-type: none"> – calculations/manipulations/decision control/branching/looping/sub-routines/functions ● edit/modify/existing code ● output/link program segments/programs using reserved words: <ul style="list-style-type: none"> – text/data/graphics. 	
Structured Computer Programming Applications	<ul style="list-style-type: none"> ● access appropriate computer language resource support ● describe purpose/use of derived data types ● discuss the need for/advantages of derived data types ● utilize derived data types in program segments 	

MODULE INF218: PROGRAMMING V (continued)

Concept	Specific Learner Expectations	Notes
Structured Computer Programming Applications (continued)	<p><i>The student should:</i></p> <ul style="list-style-type: none"> ● utilize/develop/modify iterative and recursive routines to sort/search/merge members of derived data types ● identify situations that lend themselves to specific routines ● apply appropriate operations on derived data types in a program ● develop algorithm ● design output format ● key/code the instructions ● test run program ● debug/edit program ● execute program ● document program ● assess activities/results. 	
Workstation Management	<ul style="list-style-type: none"> ● apply efficient workstation position and routines that encourage: <ul style="list-style-type: none"> – good health and safety (posture, positioning of hardware and furniture) – security for hardware, software, supplies and personal work ● demonstrate efficient and appropriate use of time and resources in terms of: <ul style="list-style-type: none"> – start-up procedures – organization of work area – closing procedures ● apply effective decision-making strategies in production assignments: <ul style="list-style-type: none"> – plan activities – organize data, information, resources – consider alternatives – evaluate activities/results ● use related terminology to describe basic processes, procedures and tools. 	

MODULE INF218: PROGRAMMING V (continued)

Part B: Object-oriented Programming

Concept	Specific Learner Expectations	Notes
Algorithms/Classes	<p><i>The student should:</i></p> <ul style="list-style-type: none"> ● modify existing/develop new algorithms/classes ● identify/describe the problem ● list each step required to solve the problem/list the required components of the data structure ● develop the appropriate logic/data components required to achieve the solution ● develop the appropriate methods of accessing data/methods in derived data types ● compare iterative and recursive routines/structures ● measure the efficiency of comparable routines/structures ● apply structured programming constructs to modify/create a schematic/flowchart/pseudocode indicating how the solution will be achieved (IPO/HIPO). 	
Computer Language Syntax	<ul style="list-style-type: none"> ● use constants, variables, data structures, operands ● use reserved words, commands, statements, operators, sub-routines, functions ● use language-specific derived data types ● input data using reserved words or predefined classes: <ul style="list-style-type: none"> – embed/read/enter data – create/assign values/operations to derived data types ● process data: <ul style="list-style-type: none"> – calculations/manipulations/decision control/branching/looping/sub-routines/functions/classes/objects/methods ● edit/modify existing code ● output/link program segments/programs using reserved words or predefined classes: <ul style="list-style-type: none"> – test/data/graphics. 	

MODULE INF218: PROGRAMMING V (continued)

Concept	Specific Learner Expectations	Notes
Structured Computer Programming	<p><i>The student should:</i></p> <ul style="list-style-type: none"> ● access appropriate computer language resource support ● describe purpose/use of derived data types ● discuss the need for/advantages of derived data types ● utilize derived data types in program segments ● utilize/develop program segments that access elements of derived data types using member/non-member functions ● utilize/develop program segments that develop new classes from base classes/add new data/methods to base classes/ redefine the way in which inherited class member functions operate/inherit characteristics from multiple classes ● identify situations that lend themselves to specific routines/structures ● apply appropriate operations on derived data types in a program ● develop algorithm/classes ● design output format ● key/code the instructions ● test run program ● debug/edit program ● execute program ● document program ● assess activities/results. 	

MODULE INF218: PROGRAMMING V (continued)

Concept	Specific Learner Expectations	Notes
Workstation Management	<p><i>The student should:</i></p> <ul style="list-style-type: none"> ● apply efficient workstation position and routines that encourage: <ul style="list-style-type: none"> – good health and safety (posture, positioning of hardware and furniture) – security for hardware, software, supplies and personal work ● demonstrate efficient and appropriate use of time and resources in terms of: <ul style="list-style-type: none"> – start-up procedures – organization of work area – closing procedures ● apply effective decision-making strategies in production assignments: <ul style="list-style-type: none"> – plan activities – organize data, information, resources – consider alternatives – evaluate activities/results ● use related terminology to describe basic processes, procedures and tools. 	

ADVANCED LEVEL

The following pages define the curriculum and assessment standards for the advanced level of Information Processing.

Advanced level modules demand a higher level of expertise and help prepare students for entry into the workplace or a related post-secondary program.

Module INF301:	Hardware/Software Analysis	F.3
Module INF302:	Local Area Networks	F.7
Module INF303:	Keyboarding IV	F.13
Module INF304:	Keyboarding V	F.17
Module INF305:	Keyboarding VI	F.21
Module INF306:	Word Processing III	F.25
Module INF307:	Electronic Publishing II	F.29
Module INF308:	Information Management Tools	F.33
Module INF309:	Word Processing Applications	F.37
Module INF310:	Specialization I	F.41
Module INF311:	Specialization II	F.45
Module INF312:	Document Production II	F.49
Module INF313:	Multimedia Authoring II	F.53
Module INF314:	Expert Systems	F.57
Module INF315:	Programming Application I	F.61
Module INF316:	Programming Application II	F.65
Module INF317:	Programming Application III	F.69

MODULE INF301: HARDWARE/SOFTWARE ANALYSIS**Level:** **Advanced****Theme:** **Systems Operations****Prerequisite:** **Computer Operations****Corequisite:** **Workstation Operations (recommended)****Module Parameters:** **Access to two different computer systems, three task-specific software packages, supporting documentation**

This module provides an opportunity for students to analyze, compare and evaluate hardware/software on the basis of user requirements.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Weighting (%)
<i>The student will:</i> <ul style="list-style-type: none">● analyze and compare computer hardware and software systems	<i>Assessment of student achievement will be based on:</i> <ul style="list-style-type: none">● an analysis and comparison of two different computer systems (internal components, peripheral devices) utilizing a self-designed assessment instrument modelled after Industry Standard Exemplars. <i>Assessment Tools (to be developed)</i>	30
	<ul style="list-style-type: none">● a comparison of three task-specific software packages on the basis of:<ul style="list-style-type: none">– hardware/operating system requirements– user friendliness– training/learning effectiveness– instructional support– command/function parameters– screen/page characteristics– intended use/audience– interoperability with other software utilizing a self-designed assessment instrument modelled after Industry Standard Exemplars. <i>Assessment Tools (to be developed)</i>	30

MODULE INF301: HARDWARE/SOFTWARE ANALYSIS (continued)

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Weighting (%)
<p><i>The student will:</i></p> <ul style="list-style-type: none"> – prepare and present a report recommending hardware and software configurations 	<p><i>Assessment of student achievement will be based on:</i></p> <ul style="list-style-type: none"> ● a report that responds to an identified need to provide or upgrade a computer system. The report will provide recommendations and rationale for a particular hardware/software components (recommendation and reasons) that addresses: <ul style="list-style-type: none"> – client needs – information base – implementation time lines – financial costs – workstation requirements – inservice training – support services – warranties – legal restrictions as modelled by and/or apprenticeship experience from within Industry Exemplars. <p><i>Assessment Tools (to be developed)</i></p>	30
<ul style="list-style-type: none"> ● consistently apply appropriate workstation routines 	<ul style="list-style-type: none"> ● meeting or exceeding “acceptable” standards in appropriate workstation routines. <p><i>Assessment Tools (to be developed)</i></p> <p><i>Workstation Routines</i></p>	10
<ul style="list-style-type: none"> ● demonstrate effort to refine basic competencies. 	<ul style="list-style-type: none"> ● observations of individual effort and interpersonal interaction during the instructional period, emphasizing: <ul style="list-style-type: none"> – managing learning – managing resources. <p><i>Assessment Tools</i></p> <p><i>Observation Checklist: Basic Competencies</i></p>	No mark

MODULE INF301: HARDWARE/SOFTWARE ANALYSIS (continued)

Concept	Specific Learner Expectations	Notes
Computer Hardware	<p><i>The student should:</i></p> <ul style="list-style-type: none"> ● identify and compare various computer systems including: <ul style="list-style-type: none"> – input components – central processing unit – memory/storage – output components – communication capability – computing speed – standard system/components characteristics – upgrade capability – user-friendly environment – cost – interface compatibility – manufacturer support and reputation – industry recommendations. 	
Computer Software	<ul style="list-style-type: none"> ● assess and compare system software/firmware: <ul style="list-style-type: none"> – hardware specifications – operating system (icon/command, supervisor, etc.) – utility programs – language translators – compilers – interpreters ● assess and compare application software (data, text, graphics): <ul style="list-style-type: none"> – application package, customized program – instructional /presentation focus – independent /integrated – windows – menus/icons – palettes/toolboxes – help screen ● access support manuals/documentation/ resources: <ul style="list-style-type: none"> – follow instructions and explanations from help menus/software manuals, other resource support. 	

MODULE INF301: HARDWARE/SOFTWARE ANALYSIS (continued)

Concept	Specific Learner Expectations	Notes
Analysis Presentation	<p><i>The student should:</i></p> <ul style="list-style-type: none"> ● identify computer user needs,time lines ● research potential alternatives ● identify sources of information ● “hands-on” experience to compare/evaluate hardware/software compatibility with identified user needs ● make/support recommendation: <ul style="list-style-type: none"> – use appropriate industry-standard format – acceptable content/description – appropriate terminology. 	<p>Define user purpose/ requirements.</p> <p>Field test:</p> <ul style="list-style-type: none"> – input components – operating system – output components – other peripherals – software package(s). <p>Presentation could involve:</p> <ul style="list-style-type: none"> – demonstration – illustrated hardcopy – multimedia – combination of above.
Workstation Management	<ul style="list-style-type: none"> ● apply efficient workstation position and routines that encourage: <ul style="list-style-type: none"> – good health and safety (posture, positioning of hardware and furniture) – security for hardware, software, supplies and personal work ● demonstrate efficient and appropriate use of time and resources in terms of: <ul style="list-style-type: none"> – start-up procedures – organization of work area – closing procedures ● apply effective decision-making strategies in production assignments: <ul style="list-style-type: none"> – plan activities – organize data, information, resources – consider alternatives – evaluate activities/results ● use related terminology to describe basic processes, procedures and tools. 	

MODULE INF302: LOCAL AREA NETWORKS**Level: Advanced****Theme: Systems Operations****Prerequisite: Computer Operations****Pre/Corequisite: Workstation Operations (recommended)****Module Parameters: Access to LAN (hardware, software, support resources)**

Students learn about local area network (LAN) computer systems, including hardware and peripheral configurations, interface protocols and data transmission characteristics.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Weighting (%)
<i>The student will:</i> <ul style="list-style-type: none">● demonstrate basic LAN competence as:<ul style="list-style-type: none">– a user– an operator/manager	<i>Assessment of student achievement will be based on:</i> <ul style="list-style-type: none">● demonstration of downloading/uploading data/information on LAN facilities● reports (verbal or written) that analyze, compare and evaluate:<ul style="list-style-type: none">– hardware/software configurations for LANs– network topologies. <i>Assessment Tools (to be developed)</i>	10 20
– a technician	<ul style="list-style-type: none">● use of network system and/or simulation managers to install LAN software<ul style="list-style-type: none">– maintain/update application, operating system and utility software on hard drive– configure/interface hardware product standards– perform trouble shooting activities– develop policies and procedures. <i>Assessment Tools (to be developed)</i> <ul style="list-style-type: none">● proposal that includes a detailed design of plan for assembly of a network system addressing:<ul style="list-style-type: none">– reasons for system– users– hardware– software– network topologies– training requirements.– financial costs– physical facilities– staffing needs– resource support <i>Assessment Tools (to be developed)</i>	20 40

MODULE INF302: LOCAL AREA NETWORKS (continued)

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Weighting (%)
<p><i>The student will:</i></p> <ul style="list-style-type: none"> consistently apply appropriate workstation routines demonstrate effort to refine basic competencies 	<p><i>Assessment of student achievement will be based on:</i></p> <ul style="list-style-type: none"> meeting or exceeding "acceptable" standards in appropriate workstation routines. <p><i>Assessment Tools (to be developed)</i></p> <p><i>Workstation Routines</i></p> <ul style="list-style-type: none"> observations of individual effort and interpersonal interaction during the instructional period, emphasizing: <ul style="list-style-type: none"> managing learning ethics managing resources demonstrating responsibility (safety and accountability). <p><i>Assessment Tools</i></p> <p><i>Observation Checklist: Basic Competencies</i></p>	<p>10</p> <p>No mark</p>

Concept	Specific Learner Expectations	Notes
LAN User	<p><i>The student should:</i></p> <ul style="list-style-type: none"> access LAN facilities and download/upload data/information. 	<p>A network consists of computers and peripheral devices connected via communication lines so that information available on the file server can be accessed quickly and shared with multi-users within the parameters of the local area network system.</p> <p>Students can be contracted for specific duties and responsibilities (consistent with school/ jurisdiction policy and professional/ethical working environment expectations) to work on an existing LAN or have an opportunity to work on a dedicated file server configured specifically to accommodate learning experiences contained in this module.</p>

MODULE INF302: LOCAL AREA NETWORKS (continued)

Concept	Specific Learner Expectations	Notes
LAN User (continued)	<i>The student should:</i>	<p>Another option might involve developing community partnerships and have students apprentice on available LAN facilities.</p> <p>Include:</p> <ul style="list-style-type: none"> - E-mail/Q-mail if available - local/long-distance LAN access.
LAN System Operational/ Management Expectations	<ul style="list-style-type: none"> ● determine network policies: <ul style="list-style-type: none"> - establish policies for: <ul style="list-style-type: none"> ● ethical use of software ● network access and security ● maintaining network data, software integrity ● file management and disk management ● computer files and directories ● file backup ● job description for the network manager ● develop network procedures for: <ul style="list-style-type: none"> - user access and passwords - set paths and perform updates - system and data security ● define procedures for file management: <ul style="list-style-type: none"> - internal (floppies, files from server, sub-directories, physical drives, logical drives for copy protected and single user programs) - public drives - DOS drives - search drives ● define the functions of network shell (copying selected drivers, linking programs, establishing connections for user and server, assigning user rights and names [password]) 	<p>Evaluate application software with respect to LAN based or single user based.</p> <p>Identify and compare network (protocol) software.</p> <p>Evaluate interface cards (NIC), servers, cables for compatibility with the operating system.</p> <p>Analyze data to determine size restrictions and extensions.</p> <p>Compare advantages of diskless terminals for physical security, cost and ergonomic factors.</p>

MODULE INF302: LOCAL AREA NETWORKS (continued)

Concept	Specific Learner Expectations	Notes
LAN System Operation/ Management Expectations (continued)	<p><i>The student should:</i></p> <ul style="list-style-type: none"> ● configure/interface hardware: <ul style="list-style-type: none"> – arrange/connect peripheral devices ● install LAN software: <ul style="list-style-type: none"> – install/backup/restore files – create/use directories/folders – incorporate file protection ● maintain/update application, operating system and utility software on hard drive: <ul style="list-style-type: none"> – use defaults, supervisor, housekeeping, diagnostic, viral protection software – perform troubleshooting: <ul style="list-style-type: none"> ● diagnosis ● remediation ● establish student procedures: <ul style="list-style-type: none"> – follow school regulations – adhere to legal, professional and ethical expectations ● demonstrate acceptable LAN performance: <ul style="list-style-type: none"> – apply manager's responsibilities <ul style="list-style-type: none"> ● schedule access ● provide assistance ● monitor activities ● evaluate performance ● recommend changes ● identify issues/trends ● determine staffing activities and needs ● use support manuals/documentation: <ul style="list-style-type: none"> – follow hardware/software and educational instructions. 	<p>Identify and compare network (protocol) software.</p> <p>Evaluate interface cards (NIC), servers, cables for compatibility with the operating system.</p> <p>Analyze data to determine size restrictions and extensions.</p> <p>Compare advantages of diskless terminals for physical security, cost and ergonomic factors.</p> <p>Determine the most appropriate configurations:</p> <ul style="list-style-type: none"> – RAM – hard drive – laser/compact disk – processor – fault tolerance – parallel processing – parallel hard drives – dedicated server, non-dedicated server.
LAN Specifications	<ul style="list-style-type: none"> ● design and map a local area network for a specified user ● identify network specifications that address: <ul style="list-style-type: none"> – conditions under which a network is established – the location of a network configuration – hardware/software selection – recommend network topologies (peer-to-peer, file server models) – inservice training requirements – identify financial costs – determine requirements for physical facilities/workstations – identify ergonomic factors/considerations 	

MODULE INF302: LOCAL AREA NETWORKS (continued)

Concept	Specific Learner Expectations	Notes
LAN Specifications (continued)	<p><i>The student should:</i></p> <ul style="list-style-type: none"> ● present recommendations and/or ● assemble/configure a functional network system. 	<p>Presentation could involve:</p> <ul style="list-style-type: none"> - demonstration - illustrated hardcopy - multimedia - all of the above.
Workstation Management	<ul style="list-style-type: none"> ● apply efficient workstation position and routines that encourage: <ul style="list-style-type: none"> - good health and safety (posture, positioning of hardware and furniture) - security for hardware, software, supplies and personal work ● demonstrate efficient and appropriate use of time and resources in terms of: <ul style="list-style-type: none"> - start-up procedures - organization of work area - closing procedures ● apply effective decision-making strategies in production assignments: <ul style="list-style-type: none"> - plan activities - organize data, information, resources - consider alternatives - evaluate activities/results ● use related terminology to describe basic processes, procedures and tools. 	

MODULE INF303: KEYBOARDING IV**Level:** Advanced**Theme:** Text/Data Input**Prerequisite:** Keyboarding III**Module Parameters:** Computer workstation, disk, word-processing software, support resources

This module develops the students' keyboarding skill of text and data to entry-level occupational expectations.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<i>The student will:</i> <ul style="list-style-type: none">● demonstrate proficient keyboarding competence:<ul style="list-style-type: none">- text entry (50 wpm)- numeric entry (150 kpm)- technique	<i>Assessment of student achievement will be based on:</i> <ul style="list-style-type: none">● successfully touch-keystroke three timed attempts over a period of no more than five consecutive class periods from straight-copy material:<ul style="list-style-type: none">- on alphabetic keys<ul style="list-style-type: none">● three minute duration● maximum 1 uncorrected error● SI 1.3 - 1.4● 50 words a minute- on numeric keys:<ul style="list-style-type: none">● one minute duration● maximum 1 uncorrected error● 150 numeric keystrokes a minute on 1 to 5 digit numbers- observations over the last quarters of the instructional period, during timings and drill work.<i>Assessment Tool</i> <i>Assessment Checklist: Text-Data Entry (INFTDENT)</i> <i>Standard</i> <i>Rating of:</i> 4 - Eye Focus 3 - Keystroking 3 - Service Keys 3 - Body Position	50 10 30

MODULE INF303: KEYBOARDING IV (continued)

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> consistently apply appropriate workstation routines demonstrate effort to refine basic competencies. 	<p><i>Assessment of student achievement will be based on:</i></p> <ul style="list-style-type: none"> demonstrate appropriate workstation routines. <p><i>Assessment Tool</i> <i>Assessment Checklist: Workstation Routines and Management (INFWRKSTN)</i></p> <p><i>Standard</i> <i>Rating of:</i> 3 - Workstation Use 4 - File Management 3 - Time Management/Organization 3 - Professionalism</p> <ul style="list-style-type: none"> observations of individual effort and interpersonal interaction during the instructional period, emphasizing: <ul style="list-style-type: none"> managing learning managing resources. <p><i>Assessment Tools</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i></p>	<p>10</p> <p>Integrated throughout</p>

Concept	Specific Learner Expectations	Notes
Text Entry	<p><i>The student should:</i></p> <ul style="list-style-type: none"> demonstrate increasingly rapid, accurate touch keystroking on straight and draft (edited) copy of: <ul style="list-style-type: none"> alphanumeric keys all punctuation keys service keys (enter, shift, delete, backspace, tab) use function and cursor movement key efficiently demonstrate correct keystroking technique: <ul style="list-style-type: none"> enter text using designated fingers maintain home-row anchor position demonstrate correct posture (hand, arm, body) 	<p>Develop speed and accuracy at the phrase, sentence and short paragraph level using short, repetitive timings (.5 to 1 minute) with straight copy text of varying SI. (1.2-1.6).</p> <p>Draft copy should include basic spacing, spelling, punctuation and spacing errors (no more than 1 error per every 10 words).</p>

MODULE INF303: KEYBOARDING IV (continued)

Concept	Specific Learner Expectations	Notes
Text Entry (continued)	<p><i>The student should:</i></p> <ul style="list-style-type: none"> ● proofread and edit text (screen and hard copy) to ensure text is without error ● analyze errors and initiate remediation as appropriate for: <ul style="list-style-type: none"> – spelling, shifting, punctuation and spacing errors – transposed, repeated, omitted letters. 	
Data Entry	<ul style="list-style-type: none"> ● demonstrate rapid, accurate data entry on keyboard/number pad: <ul style="list-style-type: none"> – using designated fingers – maintaining anchor position. 	
Workstation Management	<ul style="list-style-type: none"> ● apply efficient workstation position and routines that encourage: <ul style="list-style-type: none"> – good health and safety (posture, positioning of hardware and furniture) – security for hardware, software, supplies and personal work ● demonstrate efficient and appropriate use of time and resources in terms of: <ul style="list-style-type: none"> – start-up procedures – organization of work area – closing procedures ● apply effective decision-making strategies in production assignments: <ul style="list-style-type: none"> – plan activities – organize data, information, resources – consider alternatives – evaluate activities/results ● use related terminology to describe basic processes, procedures and tools. 	

MODULE INF304: KEYBOARDING V**Level:** Advanced**Theme:** Text/Data Input**Prerequisite:** Keyboarding IV**Module Parameters:** Computer workstation, disk, word-processing software, support resources

This module increases occupational-level keyboarding competence involving text, data and function/service keys from straight copy and edited material.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<i>The student will:</i> <ul style="list-style-type: none">● demonstrate proficient keyboarding competence:<ul style="list-style-type: none">- text entry (60 wpm)- numeric entry (180 kpm)- technique	<i>Assessment of student achievement will be based on:</i> <ul style="list-style-type: none">● successfully touch-keystroke three timed attempts over a period of no more than five consecutive class periods from straight-copy material:<ul style="list-style-type: none">- on alphabetic keys<ul style="list-style-type: none">● three minute duration● maximum 1 uncorrected error● SI ≥ 1.35● 60 words a minute- on numeric keys:<ul style="list-style-type: none">● one minute duration● maximum 1 uncorrected error● 180 numeric keystrokes a minute on 1 to 6 digit numbers- observations over the last quarters of the instructional period, during timings and drill work. <i>Assessment Tool</i> <i>Assessment Checklist: Text-Data Entry (INFTDENT)</i> <i>Standard</i> <i>Rating of:</i> 4 - Eye Focus 3 - Keystroking 3 - Service Keys 3 - Body Position	50 20 20 10

MODULE INF304: KEYBOARDING V (continued)

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<ul style="list-style-type: none"> consistently apply appropriate workstation routines 	<ul style="list-style-type: none"> demonstrate appropriate workstation routines. <i>Assessment Tool</i> <i>Assessment Checklist: Workstation Routines and Management (INFWRKSTN)</i> <i>Standard</i> <i>Rating of:</i> 3 - Workstation Use 4 - File Management 3 - Time Management/Organization 3 - Professionalism 	10
<ul style="list-style-type: none"> demonstrate effort to develop basic competencies. 	<ul style="list-style-type: none"> observations of individual effort and interpersonal interaction during the instructional period, emphasizing: <ul style="list-style-type: none"> managing learning managing resources. <i>Assessment Tools</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i> 	Integrated throughout

Concept	Specific Learner Expectations	Notes
Text Entry	<p><i>The student should:</i></p> <ul style="list-style-type: none"> demonstrate increasingly rapid, accurate touch keystroking on straight and draft copy (edited) of: <ul style="list-style-type: none"> alphanumeric keys all punctuation keys service keys use function and cursor movement keys efficiently demonstrate correct keystroking technique: <ul style="list-style-type: none"> enter text using designated fingers maintain home-row anchor position demonstrate correct posture (hand, arm, body) proofread and edit text (screen and hard copy) to ensure text is without error analyze errors and initiate remediation as appropriate for: <ul style="list-style-type: none"> spelling, shifting, punctuation and spacing errors transposed, repeated, omitted letters. 	<p>Enter, shift, delete, backspace, tab.</p> <p>Develop speed and accuracy at the phrase, sentence and short paragraph level, using short, repetitive timings (.5 to 1 minute) with straight copy text of varying SI. (1.2-1.6).</p> <p>Draft copy should include basic spacing, spelling, punctuation and spacing errors (no more than 1 error per every 10 words).</p>

MODULE INF304: KEYBOARDING V (continued)

Concept	Specific Learner Expectations	Notes
Data Entry	<p><i>The student should:</i></p> <ul style="list-style-type: none">● demonstrate rapid, accurate data entry on keyboard/number pad:<ul style="list-style-type: none">- using designated fingers- maintaining anchor position.	
Workstation Management	<ul style="list-style-type: none">● apply efficient workstation position and routines that encourage:<ul style="list-style-type: none">- good health and safety (posture, positioning of hardware and furniture)- security for hardware, software, supplies and personal work● demonstrate efficient and appropriate use of time and resources in terms of:<ul style="list-style-type: none">- start-up procedures- organization of work area- closing procedures● apply effective decision-making strategies in production assignments:<ul style="list-style-type: none">- plan activities- organize data, information, resources- consider alternatives- evaluate activities/results● use related terminology to describe basic processes, procedures and tools.	

MODULE INF305: KEYBOARDING VI (continued)

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<ul style="list-style-type: none"> consistently apply appropriate workstation routines 	<ul style="list-style-type: none"> demonstrate appropriate workstation routines. <i>Assessment Tool</i> <i>Assessment Checklist: Workstation Routines and Management (INFWRKSTN)</i> <i>Standard</i> <i>Rating of:</i> 3 - Workstation Use 4 - File Management 3 - Time Management/Organization 3 - Professionalism 	10
<ul style="list-style-type: none"> demonstrate effort to develop basic competencies. 	<ul style="list-style-type: none"> observations of individual effort and interpersonal interaction during the instructional period, emphasizing: <ul style="list-style-type: none"> managing learning managing resources. <i>Assessment Tools</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i> 	Integrated throughout

Concept	Specific Learner Expectations	Notes
Text/Data Entry	<ul style="list-style-type: none"> use formatted, straight-copy material as well as unformatted rough-draft material touch-keystroke alphabetic, numeric, punctuation, service keys consistently apply: <ul style="list-style-type: none"> correct finger/key placement healthful body position acceptable eye/copy focus use numeric keys and/or number pad 	A few five-minute timed attempts can be used to prepare for workplace expectations if deemed appropriate.
Proofreading/Editing	<ul style="list-style-type: none"> proofread/edit screen/documents analyze errors/determine remediation use spell check features errors: spelling, keystroking, punctuation, spacing, transposition, repeated, omitted use appropriate commands, functions format/output. 	

MODULE INF305: KEYBOARDING VI (continued)

Concept	Specific Learner Expectations	Notes
Workstation Management	<p><i>The student should:</i></p> <ul style="list-style-type: none">● apply efficient workstation position and routines that encourage:<ul style="list-style-type: none">– good health and safety (posture, positioning of hardware and furniture)– security for hardware, software, supplies and personal work● demonstrate efficient and appropriate use of time and resources in terms of:<ul style="list-style-type: none">– start-up procedures– organization of work area– closing procedures● apply effective decision-making strategies in production assignments:<ul style="list-style-type: none">– plan activities– organize data, information, resources– consider alternatives– evaluate activities/results● use related terminology to describe basic processes, procedures and tools.	

MODULE INF306: WORD PROCESSING III**Level:** Advanced**Theme:** Productivity Software**Prerequisites:** Keyboarding II
Word Processing II**Corequisite:** Keyboarding III (recommended)**Module Parameters:** Computer workstation, disk, word-processing software, support resources

This module provides an opportunity for students to develop occupational-level competence in the use of word-processing software commands and functions to produce mailable reports, correspondence, and tables including the importing and merging of text, data and graphics.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none">● demonstrate correct use of software functions by producing a mailable, properly formatted copy of a:<ul style="list-style-type: none">- multi-page report with title pages, table of contents, bibliography, appendices, reference lines	<p><i>Assessment of student achievement will be based on:</i></p> <ul style="list-style-type: none">● production of a minimum of three, properly formatted, mailable documents, based on unformatted, rough draft source documents:<ul style="list-style-type: none">- a report of four or more pages containing:<ul style="list-style-type: none">● title page● table of contents● references/bibliographyand three of the following:<ul style="list-style-type: none">● table● enumeration● chart● graph● graphics● appendix● headings● display paragraph● spreadsheet/database information● index● columns. <p><i>Assessment Tool</i> <i>Assessment Checklist: Word Processing Software Functions (INFWORD)</i> <i>Assessment Checklist: Document Production Features (INFDOCPR)</i> <i>Standard</i> <i>Mailable document (no errors in text or format) level 3</i></p>	30

MODULE INF306: WORD PROCESSING III (continued)

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> - two-page letters in designated letter style that incorporate special formats 	<p><i>Assessment of student achievement will be based on:</i></p> <ul style="list-style-type: none"> - two-page letter requiring at least two of the following functions: <ul style="list-style-type: none"> • merging (five or more names/addresses) • use of macros • insert of table(s) • enumeration • graphics. <p><i>Assessment Tool</i> <i>Assessment Checklist: Word Processing Software Functions (INFWORD)</i> <i>Assessment Checklist: Document Production Features (INFDOCPR)</i></p> <p><i>Standard</i> <i>Mailable document (no errors in text or format) level 3</i></p>	25
<ul style="list-style-type: none"> - memo 	<ul style="list-style-type: none"> - memo with <ul style="list-style-type: none"> • reference rotations • macros to format headings. <p><i>Assessment Tool</i> <i>Assessment Checklist: Word Processing Software Functions (INFWORD)</i> <i>Assessment Checklist: Document Production Features (INFDOCPR)</i></p> <p><i>Standard</i> <i>Mailable document (no errors in text or format) level 3</i></p>	10
<ul style="list-style-type: none"> - table 	<ul style="list-style-type: none"> - multi-column table containing a minimum of four of the following: <ul style="list-style-type: none"> • graphics • merge • graph • parallel columns • column heads • footnotes • borders • shading • sorted • letterhead • box/ruled. <p><i>Assessment Tool</i> <i>Assessment Checklist: Word Processing Software Functions (INFWORD)</i> <i>Assessment Checklist: Document Production Features (INFDOCPR)</i></p> <p><i>Standard</i> <i>Mailable document (no errors in text or format) level 3</i></p>	25

MODULE INF306: WORD PROCESSING III (continued)

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> consistently apply appropriate workstation routines demonstrate effort to develop basic competencies 	<p><i>Assessment of student achievement will be based on:</i></p> <ul style="list-style-type: none"> demonstrate appropriate workstation routines. <p><i>Assessment Tool</i> <i>Assessment Checklist: Workstation Routines and Management (INFWRKSTN)</i></p> <p><i>Standard</i> <i>Rating of:</i> 3 - Workstation Use 4 - File Management 3 - Time Management/Organization 3 - Professionalism</p> <ul style="list-style-type: none"> observations of individual effort and interpersonal interaction during the instructional period, emphasizing: <ul style="list-style-type: none"> managing learning managing resources. <p><i>Assessment Tools</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i></p>	<p>10</p> <p>Integrated throughout</p>

Concept	Specific Learner Expectations	Notes
Software Functions and Applications	<p><i>The student should:</i></p> <ul style="list-style-type: none"> compare at least two word-processing software packages in terms of: <ul style="list-style-type: none"> capabilities system requirements platform options command structure demonstrate appropriate key commands to: <ul style="list-style-type: none"> open/create files enter text name files plan and format text <ul style="list-style-type: none"> rulers/margins/tabs spacing/layout text boxes font styles/sizes footers/headers postscripts and subscripts insert graphics <ul style="list-style-type: none"> import design 	<p>Students should incorporate desktop publishing features to improve document readability; e.g.,</p> <ul style="list-style-type: none"> layout/spacing font type, style, size.

MODULE INF306: WORD PROCESSING III (continued)

Concept	Specific Learner Expectations	Notes
Software Functions and Applications (continued)	<p><i>The student should:</i></p> <ul style="list-style-type: none"> - establish and use libraries, macros - edit text <ul style="list-style-type: none"> • move (cut and paste) • spell check and thesaurus • word division • search and replace - merge and sort text - design and use macros - create and import boilerplates and templates to customize documents • move through document(s) efficiently by using appropriate cursor movement tools/commands • use help functions and references as appropriate. 	
Document Production	<ul style="list-style-type: none"> • demonstrate appropriate key commands to: <ul style="list-style-type: none"> - save files (alternative formats) - print documents • replicate, convert and append files • print documents (alternative formats) • print templates • demonstrate appropriate key commands to produce the following documents in mailable form: <ul style="list-style-type: none"> - reports <ul style="list-style-type: none"> • headings/subheading • references (footnotes, end notes, bibliography) • headers/footers • title page - personal and business letters <ul style="list-style-type: none"> • letter parts (date, inside address, salutations, complimentary closing, name/title, references) • letter styles - tables (single/multi-column) <ul style="list-style-type: none"> • headings • borders • rulers/tabs. 	<p>Use macros as appropriate.</p> <p>Mailable form: document is accurate and correctly formatted.</p> <p>Students should be familiar with various document styles, including:</p> <p>Reports:</p> <ul style="list-style-type: none"> - research reports/papers - manuscripts - articles. <p>Correspondence:</p> <ul style="list-style-type: none"> - full block - semi-block - set customized styles used by businesses in the community.

MODULE INF306: WORD PROCESSING III (continued)

Concept	Specific Learner Expectations	Notes
Workstation Management	<p><i>The student should:</i></p> <ul style="list-style-type: none">● apply efficient workstation position and routines that encourage:<ul style="list-style-type: none">- good health and safety (posture, positioning of hardware and furniture)- security for hardware, software, supplies and personal work● demonstrate efficient and appropriate use of time and resources in terms of:<ul style="list-style-type: none">- start-up procedures- organization of work area- closing procedures● apply effective decision-making strategies in production assignments:<ul style="list-style-type: none">- plan activities- organize data, information, resources- consider alternatives- evaluate activities/results● use related terminology to describe basic processes, procedures and tools.	

MODULE INF307: ELECTRONIC PUBLISHING II**Level:** Advanced**Theme:** Productivity Software**Prerequisite:** Electronic Publishing I**Module Parameters:** Computer workstation, disk, electronic/desktop publishing software, support resources

Students use the functions and commands of electronic/desktop publishing software as they integrate text composing, editing, typesetting, graphic generation and page layout functions to create customized, professional-quality documents.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Weighting (%)
<p><i>The student will:</i></p> <ul style="list-style-type: none"> ● demonstrate electronic publishing software competence by producing a customized document: <ul style="list-style-type: none"> - applying software make-up tools and commands - creating a customized document effectively incorporating text and graphics to communicate an idea or activity ● consistently apply appropriate workstation routines ● demonstrate effort to refine basic competencies. 	<p><i>Assessment of student achievement will be based on:</i></p> <ul style="list-style-type: none"> ● production of a copy of document, camera ready and a minimum of two pages, which incorporates: <ul style="list-style-type: none"> - page make-up tools (e.g., pointer, line, text, rectangle, oval, cropping, etc.) and commands (e.g., format, typeface, import, link, etc.) to plan/create a copy of an existing document - design and production of a three- to five-page document that is of camera-ready quality and includes: <ul style="list-style-type: none"> ● text ● graphics elements ● multi-column format. <p>The document should demonstrate a minimum of two of the functions in each following:</p> <ul style="list-style-type: none"> - tools: printer, line, text, rectangle, oval cropping - commands: format, typeface, importing, links. ● meeting or exceeding "acceptable" standards in appropriate workstation routines. <p><i>Assessment Tools (to be developed)</i> <i>Workstation Routines</i></p> <ul style="list-style-type: none"> ● observations of individual effort and interpersonal interaction during the instructional period, emphasizing: <ul style="list-style-type: none"> - managing learning - managing resources. <p><i>Assessment Tools</i> <i>Observation Checklist: Basic Competencies</i></p>	<p>30</p> <p>60</p> <p>10</p> <p>No mark</p>

MODULE INF307: ELECTRONIC PUBLISHING II (continued)

Concept	Specific Learner Expectations	Notes
Software Functions and Applications	<p><i>The student should:</i></p> <ul style="list-style-type: none"> ● review key features of the desktop publishing software package: <ul style="list-style-type: none"> – capabilities – system requirements – platform options – command structure ● identify data input sources ● demonstrate appropriate key commands to: <ul style="list-style-type: none"> – open/create files/templates – key, load, import, scan text and graphic files – name files – import ASCII – file conversion – format text/graphics – proofread, edit text, position graphics ● address the factors that affect desktop publishing layout: <ul style="list-style-type: none"> – identify audience, message – determine budget, resource, time constraints ● establish document layout and specifications: ● create/import graphics elements: <ul style="list-style-type: none"> – clip art – art creation – mechanical drawing – animation ● merge graphics and text ● use story editor: <ul style="list-style-type: none"> – back publications – index entry/format – page/cross reference – character codes ● use graphics: <ul style="list-style-type: none"> – gray scale scans – independent versus inline – image control – lightness/contrast settings – multi-colour – overlays – edits ● develop page format(s) <ul style="list-style-type: none"> – import/export and link data charts to other applications 	<p>Research a variety of desktop publishing applications.</p> <p>Sources of graphics</p> <ul style="list-style-type: none"> – clip art – art creation – mechanical drawing animation. <p>Select various desktop publishing applications that combine text and graphics, and incorporate desktop publishing features:</p> <ul style="list-style-type: none"> – personal documents – class assignments – school stationery, newsletter, newspaper, yearbook – signs, announcements – invitations – advertisements – brochures (single-, folded-page) – reports, manuals, booklets – community activities – customer documents – business applications. <p>Prepare text, illustrations, graphics.</p> <p>Create camera ready page layouts.</p> <p>Adhere to publishing industry standards.</p>

MODULE INF307: ELECTRONIC PUBLISHING II (continued)

Concept	Specific Learner Expectations	Notes
Software Functions and Applications (continued)	<p><i>The student should:</i></p> <ul style="list-style-type: none"> ● plan/create customized desktop templates ● move through document(s) efficiently by using appropriate cursor movement tools/commands ● create objects using special effects ● use help functions and references as appropriate. 	
Document Production	<ul style="list-style-type: none"> ● demonstrate appropriate key commands to: <ul style="list-style-type: none"> – save files – print documents – printer drivers – bitmapped – postscript/non-postscript ● demonstrate appropriate key commands to produce quality desktop publishing documents. 	
Workstation Management	<ul style="list-style-type: none"> ● apply efficient workstation position and routines that encourage: <ul style="list-style-type: none"> – good health and safety (posture, positioning of hardware and furniture) – security for hardware, software, supplies and personal work ● demonstrate efficient and appropriate use of time and resources in terms of: <ul style="list-style-type: none"> – start-up procedures – organization of work area – closing procedures ● apply effective decision-making strategies in production assignments: <ul style="list-style-type: none"> – plan activities – organize data, information, resources – consider alternatives – evaluate activities/results ● use related terminology to describe basic processes, procedures and tools. 	

MODULE INF308: INFORMATION MANAGEMENT TOOLS (continued)

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Weighting (%)
<p><i>The student will:</i></p> <ul style="list-style-type: none"> consistently apply appropriate workstation routines demonstrate effort to refine basic competencies. 	<p><i>Assessment of student achievement will be based on:</i></p> <ul style="list-style-type: none"> meeting or exceeding "acceptable" standards in appropriate workstation routines. <p><i>Assessment Tools (to be developed)</i> <i>Workstation Routines</i></p> <ul style="list-style-type: none"> observations of individual effort and interpersonal interaction during the instructional period, emphasizing: <ul style="list-style-type: none"> managing learning managing resources communication. <p><i>Assessment Tools</i> <i>Observation Checklist: Basic Competencies</i></p>	<p>10</p> <p>No mark</p>

Concept	Specific Learner Expectations	Notes
Commands and Functions	<p><i>The student should:</i></p> <ul style="list-style-type: none"> assess commercial information management software (file processing system/data base management system): <ul style="list-style-type: none"> personalize/customize information categories input appropriate data update/delete/append data/information as required obtain data/information from a variety of identified scenarios output report(s) make a presentation of package/file(s) including explanation, demonstration, presentation involving the following possibilities: <ul style="list-style-type: none"> oral description illustrated hardcopy electronic assisted multimedia review key features of the information management tools: <ul style="list-style-type: none"> capabilities/applications system requirements platform options command structures 	

MODULE INF308: INFORMATION MANAGEMENT TOOLS (continued)

Concept	Specific Learner Expectations	Notes
Commands and Functions (continued)	<p><i>The student should:</i></p> <ul style="list-style-type: none"> ● use software package commands: <ul style="list-style-type: none"> – open/load/save/print file(s) – design/define/customize parameters ● enter data: <ul style="list-style-type: none"> – input/import data ● edit/modify/update fields/file: <ul style="list-style-type: none"> – apply formulae – use resident functions – calculate/recalculate – sort (alphabetic, numeric) – create presentation graphs 	
Document Production/ Presentation	<ul style="list-style-type: none"> ● integrate/merge data ● format text/data/graphics: <ul style="list-style-type: none"> – portrait – landscape – print report(s)/document(s) ● export file(s) in a variety of formats. 	
Workstation Management	<ul style="list-style-type: none"> ● apply efficient workstation position and routines that encourage: <ul style="list-style-type: none"> – good health and safety (posture, positioning of hardware and furniture) – security for hardware, software, supplies and personal work ● demonstrate efficient and appropriate use of time and resources in terms of: <ul style="list-style-type: none"> – start-up procedures – organization of work area – closing procedures ● apply effective decision-making strategies in production assignments: <ul style="list-style-type: none"> – plan activities – organize data, information, resources – consider alternatives – evaluate activities/results ● use related terminology to describe basic processes, procedures and tools. 	

MODULE INF309: WORD-PROCESSING APPLICATIONS**Level:** Advanced**Theme:** Applied Processing**Pre/corequisite:** Correspondence, Reports, Tables/Forms, Keyboarding V, Word Processing III**Module Parameters:** Computer workstation, disk, word-processing software, support resources

This module develops high rates of production as students produce documents using numerous functions/commands for create, revise, format and print a wide range of documents in mailable form.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Weighting (%)
<i>The student will:</i> <ul style="list-style-type: none">● demonstrate workplace standards in word-processing document production	<i>Assessment of student achievement will be based on:</i> <ul style="list-style-type: none">● consistent production of mailable documents throughout a series of five, 30-minute production timings over a defined period of time consisting of:<ul style="list-style-type: none">– correspondence– reports– tables– forms/charts– documents must be produced at a minimum of 30 production words per minute and be mailable	80
<ul style="list-style-type: none">● consistently apply appropriate workstation routines	<ul style="list-style-type: none">● meeting or exceeding “acceptable” standards in appropriate workstation routines. <i>Assessment Tools (to be developed)</i> <i>Workstation Routines</i>	10
<ul style="list-style-type: none">● demonstrate effort to refine basic competencies.	<ul style="list-style-type: none">● observations of individual effort and interpersonal interaction during the instructional period, emphasizing:<ul style="list-style-type: none">– managing learning– managing resources. <i>Assessment Tools</i> <i>Observation Checklist: Basic Competencies</i>	No mark

MODULE INF309: WORD-PROCESSING APPLICATIONS (continued)

Concept	Specific Learner Expectations	Notes
Word Processing Documents	<p><i>The student should:</i></p> <ul style="list-style-type: none"> ● create word-processing documents: <ul style="list-style-type: none"> – load/key/import/merge text, data – use boilerplates, templates, files – obtain data from formatted edited copy, unformatted rough-draft copy ● produce documents for specific applications containing all parts/components/elements required for appropriate communication purposes: <ul style="list-style-type: none"> – reports/articles/papers/manuscripts – outlines – headings, references, appendix, display paragraphs, pagination, headers/footers, title page, bound/unbound formatting – correspondence/memoranda/forms – parts, styles, format, positioning, special notations, mail labels – lists/tables/grids – styles/designs/layout headings, borders, columns, rulers, tabs – chart graphs/drawings/graphics – clip art, presentation graphics, graphics elements. 	
Software Commands and Functions	<ul style="list-style-type: none"> ● apply all word-processing commands to: <ul style="list-style-type: none"> – create, import, save, replicate, convert, append word-processing files ● enter text/data/graphics: <ul style="list-style-type: none"> – proofread/edit – search/replace – spell check/thesaurus – merge text/document/graphics, boilerplates/templates – macro operations – merge operations – sort operations – utility commands/functions ● apply appropriate desktop publishing features: <ul style="list-style-type: none"> – format page/document layout – special features/justification – page positioning – enhanced appearance, readability – font (type, style, size) – portrait/landscape – bound/unbound layout 	

MODULE INF309: WORD-PROCESSING APPLICATIONS (continued)

Concept	Specific Learner Expectations	Notes
Software Commands and Functions (continued)	<p><i>The student should:</i></p> <ul style="list-style-type: none"> ● output mailable documents under time constraints: <ul style="list-style-type: none"> – hardcopy/export file(s) – expected production speed 20 to 30 wpm depending on the type of copy. 	
Workstation Management	<ul style="list-style-type: none"> ● apply efficient workstation position and routines that encourage: <ul style="list-style-type: none"> – good health and safety (posture, positioning of hardware and furniture) – security for hardware, software, supplies and personal work ● demonstrate efficient and appropriate use of time and resources in terms of: <ul style="list-style-type: none"> – start-up procedures – organization of work area – closing procedures ● apply effective decision-making strategies in production assignments: <ul style="list-style-type: none"> – plan activities – organize data, information, resources – consider alternatives – evaluate activities/results ● use related terminology to describe basic processes, procedures and tools. 	

MODULE INF310: SPECIALIZATION I**Level:** Advanced**Theme:** Applied Processing**Pre/corequisite:** Word Processing II, Keyboarding III**Module Parameters:** Computer workstation, disk, word-processing software, support resources

This module provides an opportunity to specialize in document preparation, terminology application, and associated office routine expectations in a specific focus area such as a medical, legal, petroleum, real estate, insurance, travel/tourism, forestry or agricultural environment.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Weighting (%)
<i>The student will:</i> <ul style="list-style-type: none">● demonstrate basic competence in a specific focus area by:<ul style="list-style-type: none">- using appropriate terminology- preparing/producing documents- exhibiting professional attributes● consistently apply appropriate workstation routines● demonstrate effort to refine basic competencies.	<i>Assessment of student achievement will be based on:</i> <ul style="list-style-type: none">● terminology knowledge and appropriate use in the area of specialization● efficient production of documents related to the area of specialization. <i>Assessment Tools (to be developed)</i> <i>Specialization I Reference</i> <ul style="list-style-type: none">● applying effective decision-making strategies, efficient data entry, software manipulation, time management and workstation techniques during production assignment● identifying/adhering to office routines and practices related to the area of specialization. <i>Assessment Tools (to be developed)</i> <i>Performance Checklist</i> <ul style="list-style-type: none">● meeting or exceeding "acceptable" standards in appropriate workstation routines. <i>Assessment Tools (to be developed)</i> <i>Workstation Routines</i> <ul style="list-style-type: none">● observations of individual effort and interpersonal interaction during the instructional period, emphasizing:<ul style="list-style-type: none">- managing learning- managing resources. <i>Assessment Tools</i> <i>Observation Checklist: Basic Competencies</i>	10 40 40 10 No mark

MODULE INF310: SPECIALIZATION I (continued)

Concept	Specific Learner Expectations	Notes
Specialization Focus	<p><i>The student should:</i></p> <ul style="list-style-type: none"> ● identify/research focus area: <ul style="list-style-type: none"> – work environment – stakeholder groups – routines and practices – internal/external characters/parameters – existing community offices ● determine workplace expectations: <ul style="list-style-type: none"> – personnel/duties – office layout – facilities/equipment – resource support. 	<p>The ability to efficiently apply specific terminology and documentation knowledge in a recognized professional, industrial or business workplace setting enhances opportunities for entry-level employment.</p> <p>This module could consist of a simulation, off-campus experience, student-initiated project, in-basket exercises, or integrated problem requiring specific document preparation, terminology application and workplace environment activities.</p>
Software Programs and Commands	<ul style="list-style-type: none"> ● follow instructions to customize/personalize existing documents/files: <ul style="list-style-type: none"> – load, redesign/reformat, modify existing templates/files OR <ul style="list-style-type: none"> – documents following provided instructions ● create/use documents and forms: <ul style="list-style-type: none"> – open/key/save information files – load/merge/import data, modify existing formats if required ● manipulation data/information: <ul style="list-style-type: none"> – insert/edit/delete data. 	
Produce Documents	<ul style="list-style-type: none"> ● establish time lines, priorities, required resources: <ul style="list-style-type: none"> – identify/sequence milestones ● format/revise output document(s) for internal/external use: <ul style="list-style-type: none"> – verify content, format and instructions – check reports, forms, documents for mailability – prepare backup/records. 	

MODULE INF310: SPECIALIZATION I (continued)

Concept	Specific Learner Expectations	Notes
Workstation Management	<p><i>The student should:</i></p> <ul style="list-style-type: none"> ● apply efficient workstation position and routines that encourage: <ul style="list-style-type: none"> – good health and safety (posture, positioning of hardware and furniture) – security for hardware, software, supplies and personal work ● demonstrate efficient and appropriate use of time and resources in terms of: <ul style="list-style-type: none"> – start-up procedures – organization of work area – closing procedures ● apply effective decision-making strategies in production assignments: <ul style="list-style-type: none"> – plan activities – organize data, information, resources – consider alternatives – evaluate activities/results ● use related terminology to describe basic processes, procedures and tools. 	

MODULE INF311: SPECIALIZATION II

Level: Advanced

Theme: Applied Processing

Pre/corequisite: Specialization I

Module Parameters: Computer workstation, disk, word-processing software, support resources

This module provides an opportunity to develop workplace competence in a specific focus area such as medical, legal, petroleum, real estate, insurance, travel/tourism, forestry, or agricultural environment by creating/completing appropriate documents, employing specialized communication skills and conforming to identified workplace expectations under identified time constraints.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Weighting (%)
<p><i>The student will:</i></p> <ul style="list-style-type: none"> ● demonstrate entry-level workplace competence in a specific focus area by: <ul style="list-style-type: none"> – using appropriate terminology – preparing documents – exhibiting professional attributes ● consistently apply appropriate workstation routines 	<p><i>Assessment of student achievement will be based on:</i></p> <ul style="list-style-type: none"> ● application of specialized terminology: <ul style="list-style-type: none"> – pronunciation – usage – spelling ● creation of mailable area-specific documents from unformatted, rough-draft data at 30 production words per minute. <p><i>Assessment Tools (to be developed)</i> <i>Specialization II Reference</i></p> <ul style="list-style-type: none"> ● applying effective decision-making strategies, efficient data entry, software manipulation, time management and workstation techniques through independent work ● using office routines, practices and communication skills related to the area of specialization. <p><i>Assessment Tools (to be developed)</i> <i>Performance Checklist</i></p> <ul style="list-style-type: none"> ● meeting or exceeding “acceptable” standards in appropriate workstation routines. <p><i>Assessment Tools (to be developed)</i> <i>Workstation Routines</i></p>	<p>10</p> <p>50</p> <p>30</p> <p>10</p>

MODULE INF311: SPECIALIZATION II (continued)

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Weighting (%)
<p><i>The student will:</i></p> <ul style="list-style-type: none"> ● demonstrate effort to refine basic competencies. 	<p><i>Assessment of student achievement will be based on:</i></p> <ul style="list-style-type: none"> ● observations of individual effort and interpersonal interaction during the instructional period, emphasizing: <ul style="list-style-type: none"> - managing learning - managing resources. <p><i>Assessment Tools</i> <i>Observation Checklist: Basic Competencies</i></p>	No mark

Concept	Specific Learner Expectations	Notes
Specialization Focus	<p><i>The student should:</i></p> <ul style="list-style-type: none"> ● enhance knowledge of focus area: <ul style="list-style-type: none"> - work environment - stakeholder groups - routines and practices - internal/external characteristics/parameters - existing community offices ● focus on workplace expectations: <ul style="list-style-type: none"> - personnel/duties - office layout - facilities/equipment - resource support. 	<p>The demonstration of competence in a specific focus-area broadens opportunities for employment in a professional, industrial or business environment.</p> <p>This module could consist of a simulation, off-campus experience, student-initiated project, in-basket exercises, or integrated problem requiring specific document preparation, terminology application and workplace environment activities. Focus is on developing entry-level competence by including time constraint considerations.</p>

MODULE INF311: SPECIALIZATION II (continued)

Concept	Specific Learner Expectations	Notes
Software Programs and Commands	<p><i>The student should:</i></p> <ul style="list-style-type: none"> ● customize/personalize/modify existing documents/files to meet area-specific expectations: <ul style="list-style-type: none"> – load, redesign/ reformat, modify existing templates/files OR <ul style="list-style-type: none"> – documents following provided instructions ● create/use area-specific documents and forms: <ul style="list-style-type: none"> – load/key/merge/ import/save data to create mailable documents consistent with workplace expectations ● manipulation data/information: <ul style="list-style-type: none"> – insert/edit/delete data. 	
Produce Documents	<ul style="list-style-type: none"> ● create mailable quality documents at 30 production words per minute ● establish time lines, priorities, required resources: <ul style="list-style-type: none"> – identify/sequence milestones ● edit/proofread: <ul style="list-style-type: none"> – verify content, format and instructions; fill-in forms; check reports, forms, documents for mailability ● format/revise output document(s) for internal/ external use ● prepare backup records: <ul style="list-style-type: none"> – adhere to filing, storage procedures. 	

MODULE INF311: SPECIALIZATION II (continued)

Concept	Specific Learner Expectations	Notes
Workstation Management	<p><i>The student should:</i></p> <ul style="list-style-type: none"> ● apply efficient workstation position and routines that encourage: <ul style="list-style-type: none"> – good health and safety (posture, positioning of hardware and furniture) – security for hardware, software, supplies and personal work ● demonstrate efficient and appropriate use of time and resources in terms of: <ul style="list-style-type: none"> – start-up procedures – organization of work area – closing procedures ● apply effective decision-making strategies in production assignments: <ul style="list-style-type: none"> – plan activities – organize data, information, resources – consider alternatives – evaluate activities/results ● use related terminology to describe basic processes, procedures and tools. 	

MODULE INF312: DOCUMENT PRODUCTION II**Level:** Advanced**Theme:** Applied Processing**Pre/corequisite:** Keyboarding IV, Word Processing II, Spreadsheet II, Database II**Module Parameters:** Access to word-processing, spreadsheet, database, graphics software

This module provides an opportunity for students to expand their document production skills to workplace standards. Documents could require the importing and integration of word-processing, spreadsheet, graphics and database files.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Weighting (%)
<i>The student will:</i> <ul style="list-style-type: none">demonstrate competence in producing documents that integrate word-processing, data management systems and graphics files/documents:<ul style="list-style-type: none">unedited copyunformatted copyconsistently apply appropriate workstation routines	<i>Assessment of student achievement will be based on:</i> <ul style="list-style-type: none">production (enter, format, edit and print) of documents that integrate data, text and graphics, at an "acceptable" rate of production, given edited, unformatted copy. <i>Assessment Tools (to be developed)</i> <i>Sample Document Production Test</i> <i>Document Evaluation Sheet</i>	30
	<ul style="list-style-type: none">production (enter, format, edit and print) of documents which integrate data, text and graphics at an "acceptable" rate of production, given unedited, unformatted copy <i>Assessment Tools (to be developed)</i> <i>Sample Document Production Test</i> <i>Document Evaluation Sheet</i>	30
	<ul style="list-style-type: none">production of a mailable copy of existing documents requiring proofing, editing and formatting. <i>Assessment Tools (to be developed)</i> <i>Sample Editing Test</i> <i>Document Evaluation Sheet</i>	30
	<ul style="list-style-type: none">meeting or exceeding "acceptable" standards in appropriate workstation routines. <i>Assessment Tools (to be developed)</i> <i>Workstation Routines</i>	10

MODULE INF312: DOCUMENT PRODUCTION II (continued)

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Weighting (%)
<p><i>The student will:</i></p> <ul style="list-style-type: none"> ● demonstrate effort to refine basic competencies. 	<p><i>Assessment of student achievement will be based on:</i></p> <ul style="list-style-type: none"> ● observations of individual effort and interpersonal interaction during the instructional period, emphasizing: <ul style="list-style-type: none"> – managing learning – managing resources. <p><i>Assessment Tools</i> <i>Observation Checklist: Basic Competencies</i></p>	No mark

Concept	Specific Learner Expectations	Notes
Document Creation	<p><i>The student should:</i></p> <ul style="list-style-type: none"> ● follow instructions to customize/personalize existing text and data files ● load, redesign/reformat, modify existing templates/files containing information from database, spreadsheet, presentation graphics files ● apply word-processing, database, spreadsheet commands as appropriate to import and merge documents into word-processing file ● manipulate word-processing, database, spreadsheet, graphics software to produce mailable documents from drafts: <ul style="list-style-type: none"> – edited, unformatted – unedited, unformatted – edited, formatted ● merge database, spreadsheet and graphics components into word-processing files. 	<p>Potential sources of documents:</p> <ul style="list-style-type: none"> – simulations – in-baskets – projects.
Document Production	<ul style="list-style-type: none"> ● format/revise documents ● clarify the purpose of the document: <ul style="list-style-type: none"> – target audience – single/multiple/presentation copy ● print and save documents. 	

MODULE INF312: DOCUMENT PRODUCTION II (continued)

Concept	Specific Learner Expectations	Notes
Workstation Management	<p><i>The student should:</i></p> <ul style="list-style-type: none"> ● apply efficient workstation position and routines that encourage: <ul style="list-style-type: none"> – good health and safety (posture, positioning of hardware and furniture) – security for hardware, software, supplies and personal work ● demonstrate efficient and appropriate use of time and resources in terms of: <ul style="list-style-type: none"> – start-up procedures – organization of work area – closing procedures ● apply effective decision-making strategies in production assignments: <ul style="list-style-type: none"> – plan activities – organize data, information, resources – consider alternatives – evaluate activities/results ● use related terminology to describe basic processes, procedures and tools. 	

MODULE INF313: MULTIMEDIA AUTHORIZING II**Level: Advanced****Theme: Dynamic Environment****Pre/corequisite: Multimedia Authoring I****Module Parameters: Computer workstation, multimedia software, support resources**

This module provides an opportunity to learn to use a multimedia file/media authoring software based on and digitized input of text, video and audio clips.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Weighting (%)
<i>The student will:</i> <ul style="list-style-type: none">● demonstrate multimedia authoring software and digitized input competence by:<ul style="list-style-type: none">– capturing text/images video and audio information from external sources and inputting it on a personal computer– using captured text/images, video and audio to create a multimedia presentation● consistently apply appropriate workstation routines● demonstrate effort to refine basic competencies.	<i>Assessment of student achievement will be based on:</i> <ul style="list-style-type: none">● capturing text, video and audio from external sources and storing digitally on a personal computer● planning/creating a multimedia presentation that consists of text, video and audio components including software-resident and external-source input. <i>Assessment Tools (to be developed)</i> <i>Exemplar</i>	30 60
	<ul style="list-style-type: none">● meeting or exceeding “acceptable” standards in appropriate workstation routines. <i>Assessment Tools (to be developed)</i> <i>Workstation Routines</i>	10
	<ul style="list-style-type: none">● observations of individual effort and interpersonal interaction during the instructional period, emphasizing:<ul style="list-style-type: none">– managing learning– being innovative– managing resources. <i>Assessment Tools</i> <i>Observation Checklist: Basic Competencies</i>	No mark

MODULE INF313: MULTIMEDIA AUTHORIZING II (continued)

Concept	Specific Learner Expectations	Notes
Multimedia Authoring Skill	<p><i>The student should:</i></p> <ul style="list-style-type: none"> ● identify, access and use import commands and functions to import text/images, video and audio information from external sources ● import text/images, video and audio information ● manipulate text/images and audio information as required. 	
Multimedia Authoring Application	<ul style="list-style-type: none"> ● create a customized multimedia authored file/movie (key, import, digitize text, video, audio clips) using software program(s) and external sources by doing all or some of the following: <ul style="list-style-type: none"> – establish windows/screen parameters and characteristics – determine clip considerations – open/import/digitize source clips <ul style="list-style-type: none"> ● still-images ● animations ● audio clips ● window files ● special files – edit windows/screens using: <ul style="list-style-type: none"> ● toolkit functions ● command options – edit clips (trim/split/join/align) ● preview segments, tracks, sequence ● print/export file; storyboard the window/screen; enhance with visual transitions; apply digital filters; create titles/graphics; superimpose clips ● run uncompiled sequence; play compiled movie (videotape recording, edit decision list). 	<p>Multimedia software uses the power of the computer to create presentations that integrate text information, visual images and sound tracks. Sources of input include both software-resident clips as well as externally digitized images from videotape, full-motion video sequences, music segments, computer-generated animation, CD/laser discs and other graphics elements including still images, paintings or photographs.</p>

MODULE INF313: MULTIMEDIA AUTHORING II (continued)

Concept	Specific Learner Expectations	Notes
Workstation Management	<p><i>The student should:</i></p> <ul style="list-style-type: none">● apply efficient workstation position and routines that encourage:<ul style="list-style-type: none">– good health and safety (posture, positioning of hardware and furniture)– security for hardware, software, supplies and personal work● demonstrate efficient and appropriate use of time and resources in terms of:<ul style="list-style-type: none">– start-up procedures– organization of work area– closing procedures● apply effective decision-making strategies in production assignments:<ul style="list-style-type: none">– plan activities– organize data, information, resources– consider alternatives– evaluate activities/results● use related terminology to describe basic processes, procedures and tools.	

MODULE INF314: EXPERT SYSTEMS**Level:** Advanced**Theme:** Dynamic Environment**Pre/corequisite:** Computer Operations, Hypermedia Tools or Process Control, Programming I and II, Multimedia Authoring I (recommended)**Module Parameters:** Computer workstation, software, support resources

Students develop an introductory knowledge of expert systems such as artificial intelligence and virtual reality. They will gain competence by developing/modifying programs that incorporate computer-controlled environments and multimedia interactive activities and applications.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Weighting (%)
<i>The student will:</i> <ul style="list-style-type: none">● develop an information portfolio on expert systems and other advanced technologies	<i>Assessment of student achievement will be based on:</i> <ul style="list-style-type: none">● given available school, jurisdiction, community partnership resources:<ul style="list-style-type: none">– research, document, illustrate expert systems (virtual reality, artificial intelligence, etc.) technology and applications<i>Assessment Tools (to be developed)</i> <i>Exemplar</i>	35
<ul style="list-style-type: none">● program an application using one of these systems	<ul style="list-style-type: none">– use an appropriate programming language/artificial intelligence software package to solve a specific problem or modify an existing application <i>Assessment Tools (to be developed)</i> <i>Exemplar</i>	35
<ul style="list-style-type: none">● present the results	<ul style="list-style-type: none">– explain/demonstrate expert system principles and application(s)	20
<ul style="list-style-type: none">● consistently apply appropriate workstation routines	<ul style="list-style-type: none">● meeting or exceeding “acceptable” standards in appropriate workstation routines. <i>Assessment Tools (to be developed)</i> <i>Workstation Routines</i>	10
<ul style="list-style-type: none">● demonstrate effort to refine basic competencies.	<ul style="list-style-type: none">● observations of individual effort and interpersonal interaction during the instructional period, emphasizing:<ul style="list-style-type: none">– managing learning– being innovative– managing resources.<i>Assessment Tools</i> <i>Observation Checklist: Basic Competencies</i>	No mark

MODULE INF314: EXPERT SYSTEMS (continued)

Concept	Specific Learner Expectations	Notes
Artificial Intelligence/ Virtual Reality Application	<p><i>The student should:</i></p> <ul style="list-style-type: none"> ● identify software/application(s): <ul style="list-style-type: none"> – simulations, telerobotics, telecollaboration, telepresence systems, architecture, audio/airline industry, medicine, physical fitness and entertainment ● plan/create/modify a program and/or activity according to provided instructions ● collect required support resources. 	
Expert Systems Programming and Software	<ul style="list-style-type: none"> ● apply expert system software commands/instructions/code: <ul style="list-style-type: none"> – load/create customize/modify expert systems software templates, stacks, files, or simulation application that supports an artificial intelligence and/or virtual reality project or scratch program/modify existing program(s) ● input data: <ul style="list-style-type: none"> – design/define project parameters <ul style="list-style-type: none"> ● flowchart sequence – enter data <ul style="list-style-type: none"> ● key, load data ● create/import/scan graphic elements ● access/manipulate data/information: <ul style="list-style-type: none"> – create background – edit/modify/update data/information – use resident commands – link file(s) – incorporate text (alphabetic, numeric), graphics, motion, sound – demonstrate artificial intelligence/virtual reality/other high technology capability ● output expert system activities ; <ul style="list-style-type: none"> – display/print/export <ul style="list-style-type: none"> ● artificial intelligence file ● virtual reality file. 	

MODULE INF314: EXPERT SYSTEMS (continued)

Concept	Specific Learner Expectations	Notes
Workstation Management	<p><i>The student should:</i></p> <ul style="list-style-type: none"> ● apply efficient workstation position and routines that encourage: <ul style="list-style-type: none"> – good health and safety (posture, positioning of hardware and furniture) – security for hardware, software, supplies and personal work ● demonstrate efficient and appropriate use of time and resources in terms of: <ul style="list-style-type: none"> – start-up procedures – organization of work area – closing procedures ● apply effective decision-making strategies in production assignments: <ul style="list-style-type: none"> – plan activities – organize data, information, resources – consider alternatives – evaluate activities/results ● use related terminology to describe basic processes, procedures and tools. 	

Concept	Specific Learner Expectations	Notes
Workstation Management	<p><i>The student should:</i></p> <ul style="list-style-type: none"> ● apply efficient workstation position and routines that encourage: <ul style="list-style-type: none"> – good health and safety (posture, positioning of hardware and furniture) – security for hardware, software, supplies and personal work ● demonstrate efficient and appropriate use of time and resources in terms of: <ul style="list-style-type: none"> – start-up procedures – organization of work area – closing procedures ● apply effective decision-making strategies in production assignments: <ul style="list-style-type: none"> – plan activities – organize data, information, resources – consider alternatives – evaluate activities/results ● use related terminology to describe basic processes, procedures and tools. 	

MODULE INF315: PROGRAMMING APPLICATION I**Level:** Advanced**Theme:** Programming**Pre/corequisite:** Programming III**Module Parameters:** Computer workstation, programming language software, language code manual, support resources

Students create programs that use external files.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Weighting (%)
<i>The student will:</i> <ul style="list-style-type: none">● create an algorithm to solve problems requiring an external data file● develop programs that create, retrieve, append and modify text/nontext files● consistently apply appropriate workstation routines● demonstrate effort to refine basic competencies.	<i>Assessment of student achievement will be based on:</i> <ul style="list-style-type: none">● distinguishing programming problems requiring the use of external data files● distinguishing programming problems requiring text versus nontext files	30
	<ul style="list-style-type: none">● creating and revising programs that will create, retrieve, append and modify external data files● creating and revising programs that will sequentially/randomly access data from external data files. <i>Assessment Tools</i> <i>Sample Assignment: Programming PA1</i>	70
	<ul style="list-style-type: none">● meeting or exceeding "acceptable" standards in appropriate workstation routines. <i>Assessment Tools (to be developed)</i> <i>Workstation Routines</i>	10
	<ul style="list-style-type: none">● observations of individual effort and interpersonal interaction during the instructional period, emphasizing:<ul style="list-style-type: none">– managing learning– being innovative– managing resources. <i>Assessment Tools</i> <i>Observation Checklist: Basic Competencies</i>	No mark

MODULE INF315 : PROGRAMMING APPLICATION I (continued)

Concept	Specific Learner Expectations	Notes
Algorithms/Classes	<p><i>The student will:</i></p> <ul style="list-style-type: none"> ● modify existing/develop new algorithms/classes ● identify/describe the problem ● list each step required to solve the problem/list the required components of the data structure ● develop the appropriate logic/data components required to achieve the solution ● develop the appropriate methods of creating and accessing data stored in external files ● compare characteristics and use of text and binary files ● select appropriate file structure based on problem characteristics ● apply structured programming constructs to modify/create a schematic/flowchart/pseudocode indicating how the solution will be achieved (IPO/HIPO). 	Programmers design algorithms and use either a procedure-oriented or object-oriented language structure to code instructions for specific and unique computer tasks.
Computer Language Syntax	<ul style="list-style-type: none"> ● use constants, variables, data structures, operands ● use reserved words, commands, statements, operators, sub-routines, functions ● use language specific derived data types ● input data using reserved words or predefined classes: <ul style="list-style-type: none"> – embed/read from external files/enter data – create/assign values/operations to derived data types – open and access contents of text and binary files sequentially/randomly ● process data: <ul style="list-style-type: none"> – calculations/manipulations/decision control/branching/looping/sub-routines/functions/classes/objects/methods/files ● edit/modify existing code ● output/link program segments/programs using reserved words or predefined classes: <ul style="list-style-type: none"> – text/data/graphics – create and access text and binary files. 	

MODULE INF315: PROGRAMMING APPLICATION I (continued)

Concept	Specific Learner Expectations	Notes
Structure Computer Programming Applications	<p><i>The student will:</i></p> <ul style="list-style-type: none"> ● access appropriate computer language resource support ● describe the purpose/use of text and binary files ● discuss the need for/advantages of text and binary files ● utilize/develop program segments that create/open/write to/read from/append to text and binary files ● utilize/develop program segments that access the contents of external files sequentially and randomly ● utilize/develop program segments that access multiple files ● identify situations that lend themselves to specific types of file structures ● apply appropriate file structures and operations in a program ● develop algorithms/classes ● design output format/file structure ● key/code the instructions ● test run program ● debug/edit program ● execute program ● document program ● assess activities/results. 	

MODULE INF315: PROGRAMMING APPLICATION I

Concept	Specific Learner Expectations	Notes
Workstation Management	<p><i>The student should:</i></p> <ul style="list-style-type: none">● apply efficient workstation position and routines that encourage:<ul style="list-style-type: none">– good health and safety (posture, positioning of hardware and furniture)– security for hardware, software, supplies and personal work● demonstrate efficient and appropriate use of time and resources in terms of:<ul style="list-style-type: none">– start-up procedures– organization of work area– closing procedures● apply effective decision-making strategies in production assignments:<ul style="list-style-type: none">– plan activities– organize data, information, resources– consider alternatives– evaluate activities/results● use related terminology to describe basic processes, procedures and tools.	

MODULE INF316: PROGRAMMING APPLICATION II**Level:** Advanced**Theme:** Programming**Prerequisite:** Programming III**Module Parameters:** Computer workstation, programming language, language code manual, support resources

Students create a program using a second programming language.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions	Weighting (%)
<i>The student will:</i> <ul style="list-style-type: none">● employ existing algorithms to solve programming problems	<i>Assessment of student achievement will be based on:</i> <ul style="list-style-type: none">● formulating an algorithm for the solution of the problem	20
<ul style="list-style-type: none">● create programs to solve problems using a second programming language using:<ul style="list-style-type: none">– basic input/output– basic mathematical function– looping and branches– sub-programs structure	<ul style="list-style-type: none">● distinguishing generic characteristics of problems and design algorithmic solutions independent of programming language● constructing programs that use predefined language specific variables● constructing programs that assign values to variables within the program and via the keyboard● constructing programs that use language-specific commands to perform iterative and decision control operations (relational and logic)● constructing programs that use language-specific sub-program structures● constructing programs that use language-specific reserved words/structures for generating and formatting output. <i>Assessment Tools</i> <i>Sample Assignment: Programming PA2</i>	80
<ul style="list-style-type: none">● consistently apply appropriate workstation routines	<ul style="list-style-type: none">● meeting or exceeding “acceptable” standards in appropriate workstation routines. <i>Assessment Tools (to be developed)</i> <i>Workstation Routines</i>	10

MODULE INF316: PROGRAMMING APPLICATION II (continued)

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Weighting (%)
<p><i>The student will:</i></p> <ul style="list-style-type: none"> ● demonstrate effort to refine basic competencies. 	<p><i>Assessment of student achievement will be based on:</i></p> <ul style="list-style-type: none"> ● observations of individual effort and interpersonal interaction during the instructional period, emphasizing: <ul style="list-style-type: none"> – managing learning – being innovative – managing resources. <p><i>Assessment Tools</i> <i>Observation Checklist: Basic Competencies</i></p>	No mark

Concept	Specific Learner Expectations	Notes
Algorithms/Classes	<p><i>The student should:</i></p> <ul style="list-style-type: none"> ● modify existing/develop new algorithms/classes ● identify/describe the problem ● list each step required to solve the problem/list the required components of the data structure ● develop the appropriate logic/data components required to achieve the solution ● identify generic characteristics of programming languages ● identify steps involved in problem solving independent of programming language ● apply structured programming constructs to modify/create a schematic/flowchart/pseudocode indicating how the solution will be achieved (IPO/HIPO). 	<p>Programmers design algorithms and use either a procedure-oriented or object-oriented language structure to code instructions for specific and unique computer tasks. Various computer languages have been developed over the years to improve computer communication efficiency.</p>

MODULE INF316: PROGRAMMING APPLICATION II (continued)

Concept	Specific Learner Expectations	Notes
Computer Language Syntax	<p><i>The student should:</i></p> <ul style="list-style-type: none"> ● use constraints, variables, data structures, operands in a second programming language ● use reserved words, commands, statements, operators, sub-routines, functions in a second programming language ● use second language-specific derived data types ● input data using reserved words or predefined classes of a second programming language: <ul style="list-style-type: none"> – embed/read/enter data – create/assign values/operations to derived data types ● process data using second language constructs: <ul style="list-style-type: none"> – calculations/manipulations/decision control/branching/looping/subroutines/functions/classes/objects/methods ● output/link program segments/programs using reserved words or predefined classes of a second programming language: <ul style="list-style-type: none"> – text/data/graphics. 	
Structure Computer Programming Applications	<ul style="list-style-type: none"> ● access appropriate computer language resource support ● discuss the parallels/differences between the two programming languages ● utilize/develop program segments using second language constructs to enter/manipulate/output data ● recode first language programs using second programming language ● apply second language constructs in a program ● develop algorithms/classes ● design output format ● key/code the instructions ● test run programs ● debug/edit program ● execute program ● document program ● assess activities/results. 	

MODULE INF316: PROGRAMMING APPLICATION II (continued)

Concept	Specific Learner Expectations	Notes
Workstation Management	<p><i>The student should:</i></p> <ul style="list-style-type: none"> ● apply efficient workstation position and routines that encourage: <ul style="list-style-type: none"> – good health and safety (posture, positioning of hardware and furniture) – security for hardware, software, supplies and personal work ● demonstrate efficient and appropriate use of time and resources in terms of: <ul style="list-style-type: none"> – start-up procedures – organization of work area – closing procedures ● apply effective decision-making strategies in production assignments: <ul style="list-style-type: none"> – plan activities – organize data, information, resources – consider alternatives – evaluate activities/results ● use related terminology to describe basic processes, procedures and tools. 	

MODULE INF317: PROGRAMMING APPLICATION III**Level: Advanced****Theme: Programming****Pre/corequisite: Programming III****Module Parameters: Computer workstation, programming language, language code manual, support resources**

Students enhance a program using a second programming language.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Weighting (%)
<p><i>The student will:</i></p> <ul style="list-style-type: none"> • employ existing/create algorithms to solve programming problems 	<p><i>Assessment of student achievement will be based on:</i></p> <ul style="list-style-type: none"> • formulating an algorithm for the solution of the problem 	20–30
<ul style="list-style-type: none"> • create programs to solve problems using a second programming language using: <ul style="list-style-type: none"> – one- and two-dimension arrays – character strings – sort, search and merge operations – external data files 	<ul style="list-style-type: none"> • distinguishing generic characteristics of problems and design algorithmic solutions independent of programming language • constructing programs that use one- and two-dimensional arrays • constructing programs that perform operations on character strings • constructing programs that sort, search and merge operations • constructing programs that create/access external data files 	70–80
<ul style="list-style-type: none"> • consistently apply appropriate workstation routines 	<p><i>Assessment Tools (to be developed)</i> <i>Sample Assignment: Programming PA3</i></p> <ul style="list-style-type: none"> • meeting or exceeding “acceptable” standards in appropriate workstation routines. 	10
<ul style="list-style-type: none"> • demonstrate effort to refine basic competencies. 	<p><i>Assessment Tools (to be developed)</i> <i>Workstation Routines</i></p> <ul style="list-style-type: none"> • observations of individual effort and interpersonal interaction during the instructional period, emphasizing: <ul style="list-style-type: none"> – managing learning – managing resources. <p><i>Assessment Tools</i> <i>Observation Checklist: Basic Competencies</i></p>	No mark

MODULE INF317: PROGRAMMING APPLICATION III (continued)

Concept	Specific Learner Expectations	Notes
Algorithms/Classes	<p><i>The student should:</i></p> <ul style="list-style-type: none"> ● modify existing/develop new algorithms/classes ● identify/describe the problem ● list each step required to solve the problem/list the required components of the data structure ● develop the appropriate logic/data components required to achieve the solution ● identify steps involved in problem solving independent of programming language ● apply structured programming constructs to modify/create a schematic/flowchart/pseudocode indicating how the solution will be achieved (IPO/HIPO). 	<p>Programmers normally follow a general or specific set of guidelines when developing computer programs for a client. However, when creating their own computer programs they are able to work within the parameters of their own creativity.</p>
Computer Language Syntax	<ul style="list-style-type: none"> ● use constraints, variables, data structures, operands in an appropriate programming language ● use reserved words, commands, statements, operators, sub-routines, functions in the selected programming language ● use language specific derived data types ● input data using reserved words or predefined classes: <ul style="list-style-type: none"> – embed/read/enter data – create/assign values/operations to derived data types ● process data: <ul style="list-style-type: none"> – calculations/manipulations/decision control/branching/looping/sub-routines/functions/classes/objects/methods ● output/link program segments/programs using reserved words or redefined classes: <ul style="list-style-type: none"> – text/data/graphics. 	

MODULE INF317: PROGRAMMING APPLICATION III (continued)

Concept	Specific Learner Expectations	Notes
Structure Computer Programming Applications	<p><i>The student should:</i></p> <ul style="list-style-type: none"> ● access appropriate computer language resource support ● utilize/develop program segments to enter/manipulate/output data ● apply selected language constructs in a program ● develop algorithms/classes ● design output format ● key/code the instructions ● test run programs ● debug/edit program ● execute program ● document program ● assess activities/results. 	
Workstation Management	<ul style="list-style-type: none"> ● apply efficient workstation position and routines that encourage: <ul style="list-style-type: none"> – good health and safety (posture, positioning of hardware and furniture) – security for hardware, software, supplies and personal work ● demonstrate efficient and appropriate use of time and resources in terms of: <ul style="list-style-type: none"> – start-up procedures – organization of work area – closing procedures ● apply effective decision-making strategies in production assignments: <ul style="list-style-type: none"> – plan activities – organize data, information, resources – consider alternatives – evaluate activities/results ● use related terminology to describe basic processes, procedures and tools. 	

Information Processing

ASSESSMENT TOOLS

(Revised)

Draft, June 1995

ASSESSMENT TOOLS

The following pages include background information and strategies for assessing student achievement, and the assessment tools that are listed in Sections D, E and F of this Guide.

This section of the Guide to Standards and Implementation has been designed to provide a common set of assessment tools that can be applied in each module in CTS throughout the province. The goal is to establish assessment standards that are fair and credible, and challenge junior and senior high school students as they proceed through the CTS program.

These tools will assist teachers throughout the province to more consistently assess student achievement. The purpose of expanding on the assessment standards is to:

- increase confidence among students, parents, business/industry and post-secondary that students can demonstrate the competencies specified in the modules they have completed
- encourage fairness and equity in how students' efforts are judged
- enable learners to focus effort on key learnings
- support teachers and community partners in planning and implementing CTS.

These tools are in draft form and are being validated between now and 1997 during the optional stage of CTS implementation.

Assessing Student Achievement in CTS

Assessing Student Achievement in Information Processing (to be developed)

Assessment Tools Generic to CTS

Basic Competencies Reference Guide

Assessment Tools Generic to Information Processing

INFDB: Assessment Checklist: Database Document Production and Software Functions

INFDOCPR: Assessment Checklist: Document Production Features

INFSS: Assessment Checklist: Spreadsheet Document Production and Software Functions

INFDTIDENT: Assessment Checklist: Text - Data Entry

INFWORD: Assessment Checklist: Word Processing Software Functions

INFWRKSTN: Assessment Checklist: Workstation Routines and Management

Assessment Tools Specific to Information Processing Modules

INF101-1: Assessment Checklist: A. File Management Procedures

B. Text / Data Entry

C. Computer Workstation Components

INF101-2: Assessment Guide: Presentations and Reports

INF104-1: Assessment Checklist: Graphic Tools Document Production and Software Functions

INFKEYNB: Reference Chart: Keyboarding and Numberpad Rates

ASSESSING STUDENT ACHIEVEMENT IN CTS

The CTS assessment standards assess two basic forms of competency:

- What a student **can do**?
 - make a product (e.g., wood bowl, report, garment)
 - demonstrate a process
 - strand-related competencies (e.g., keyboarding, hair cutting, sewing techniques, lab procedures)
 - basic competencies (e.g., resource use, safety procedures, teamwork)
- What a student **knows**?
 - knowledge base needed to demonstrate a competency (link theory and practice).

CTS Defines *Summative* Assessment Standards

The assessment standards and tools defined for the CTS modules, referenced in Sections D, E and F of this Guide, focus on the final (or summative) assessment of student achievement.

Assessment throughout the learning period (or formative assessment) will continue to assess how students are progressing. Teachers direct and respond to students' efforts to learn – setting and marking tasks and assignments, indicating where improvement is needed, sending out interim reports, congratulating excellence, etc.

Teachers will decide which instructional and assessment strategies to apply during the formative learning period. As formative and summative assessment are closely linked, some teachers may wish to modify the tools included in this section to use during the instructional process. Teachers may also develop their own summative assessment tools as long as the standards are consistent with the minimum expectations outlined by Alberta Education.

Grading and Reporting Student Achievement

When a student can demonstrate ALL of the exit-level competencies defined for the module (Module Learner Expectations), the teacher will designate the module as “successfully completed.” The teacher will then use accepted grading practices to determine the percentage grade to be given for the module—a mark not less than 50%.

The time frame a teacher allows a student to develop the exit-level competency is a local decision. NOTE: The Senior High School Handbook specifies that students must have access to 25 hours of instruction for each credit. Students may, however, attain the required competencies in less time and may proceed to other modules.

Teachers are encouraged to consult their colleagues to ensure grading practices are as consistent as possible.

High school teachers may wish to refer to “Directions for Reporting Student Achievement in CTS” for information on how to use the CTS course codes to report credits students have earned to Alberta Education. (Copies of this document have been forwarded to superintendents and senior high school principals.)

Components of Assessment Standards in CTS

The following components are included in each module:

- **module learner expectations** (shaded left column of the module) define the exit-level competencies students are expected to achieve to complete a module. Each MLE defines and describes critical behaviors that can be measured and observed. The student must meet the standard specified for ALL MLEs within a module to be successful. (MLEs will not change until 1997 when minor adjustments may be made to update and clarify wording.)

- **suggested emphasis** (right column of the module) provides a guideline for the relative significance of each MLE and can be used to organize for instruction. *(In draft until early 1997, revisions to selected modules will be distributed in June 1995 and 1996 with final revisions in June 1997.)*
- **conditions and criteria** (middle column of the module) set the framework for the assessment of student competency, specifying the minimum standard for performance and including a reference to assessment tools, where appropriate. *(In draft until early 1997, revisions to selected modules will be distributed in June 1995 and 1996 with final revisions in June 1997.)*

Conditions outline the specifications under which a student's competency can be judged. For example, the conditions could specify whether the assessment should be timed or not, or if the student should be allowed to access to support resources or references.

Criteria define the behaviors that a student must demonstrate to meet the designated standard. For example, the criteria could describe the various techniques that must be demonstrated when using a tool, and/or describe the minimum components of a project the student must complete.

Standard -The *standard* may be defined by (1) assessment tools, which are referenced in this section (or sometimes in approved learning resources) and/or (2) exemplars of student work (to be developed and distributed as "Reference Sets" in June 1997).

Assessment Tools included in this section of the Guide (e.g. checklists, rubrics/rating scales) tend to be of two types:

- tools generic to a strand or to the entire CTS program; e.g., a standard 4-point Project Assessment Scale / Rubric is used in all strands. Other generic tools being developed include assessing reports and

presentations and lab safety checklists. *(Names of these tools include the strand code (e.g., "INF" for Information Processing) and a code for the type of tool (e.g., "TDENT" for Text-Data Entry).)*

- tools specific to a module; e.g., assessment checklist for assessing a venture plan in Enterprise and Innovation or a checklist for sketching, drawing and modeling in Design Studies. *(Names of these tools include the module code; e.g., "INF101-1" indicating that it is the first module-specific tool used in Information Processing 101.)*
- Exemplars / Reference Sets : Selected examples of student work in print, audio, video and/or CD-ROM formats are scheduled to be available by June 1997. These exemplars will supplement the assessment tools and help teachers decide if a student's work is at standard, above standard, or not yet at standard.

Development and Validation Processes

The "Conditions and Criteria" and "Suggested Emphasis" columns and related assessment tools are being validated 1994-97, with extensive input from teachers, professional associations / contacts and post-secondary institutions. The goal is to prepare well-structured assessment standards and related assessment tools that:

- establish an appropriate level of challenge and rigor
- relate directly to the type of learning described in the curriculum standard
- are easy to understand
- efficient to implement
- can provide a consistent measure of what was expected to be measured.

BASIC COMPETENCIES REFERENCE GUIDE

The following basic competencies (KSA) are integrated throughout the CTS program. A student's performance and growth should be assessed through observations involving the student, the teacher, peers and others. As the student progresses through the levels, he or she builds on competencies gained in earlier levels.

	Basic Competency	Stage 1	Stage 2	Stage 3
P e r s o n a l M a n a g e m e n t	Managing Learning	<i>The student will:</i> <ul style="list-style-type: none"> <input type="checkbox"/> be able to identify/locate appropriate reference/information sources <input type="checkbox"/> identify and demonstrate a variety of learning skills and tools; e.g., learning styles/ preferences and strategies such as notemaking, concept mapping, etc. 	<i>The student will:</i> <ul style="list-style-type: none"> <input type="checkbox"/> apply a variety of learning styles/preferences to enhance ability to acquire new information recall and apply knowledge 	<i>The student will:</i> <ul style="list-style-type: none"> <input type="checkbox"/> draw and defend conclusions from available information <input type="checkbox"/> extract rules or principles <input type="checkbox"/> apply rules and principles to new situations
	Being Innovative	<ul style="list-style-type: none"> <input type="checkbox"/> recognize opportunities and problems <input type="checkbox"/> specify goals and constraints <input type="checkbox"/> generate alternatives <input type="checkbox"/> consider risks <input type="checkbox"/> evaluate and select best alternative 	<ul style="list-style-type: none"> <input type="checkbox"/> think critically and act logically to evaluate situations, solve problems and make decisions 	<ul style="list-style-type: none"> <input type="checkbox"/> combine ideas or information in new ways <input type="checkbox"/> make connections between seemingly unrelated ideas <input type="checkbox"/> prepare, validate and implement plans that reveal new possibilities
	Ethics	<ul style="list-style-type: none"> <input type="checkbox"/> identify appropriate ethical behaviour 	<ul style="list-style-type: none"> <input type="checkbox"/> demonstrate appropriate ethical behaviour 	<ul style="list-style-type: none"> <input type="checkbox"/> encourage and support others to demonstrate ethical behaviour
	Managing Resources	<ul style="list-style-type: none"> <input type="checkbox"/> allocate time effectively by selecting relevant, goal-related activities, ranking them in order of importance, allocating time, and preparing and following schedules. 	<ul style="list-style-type: none"> <input type="checkbox"/> allocate materials and use facilities effectively by acquiring, storing, and distributing materials, supplies, parts, equipment, space, or final products in order to make best use of them. 	<ul style="list-style-type: none"> <input type="checkbox"/> allocate human and other resources effectively by assessing knowledge and skills, distributing work and materials, evaluating performance and providing feedback.
S o c i a l I n t e r a c t i o n s	Communication	<ul style="list-style-type: none"> <input type="checkbox"/> prepare and effectively present accurate, concise written, visual and oral reports 	<ul style="list-style-type: none"> <input type="checkbox"/> communicate thoughts, feelings, and ideas to justify or challenge a position by encouraging, persuading, convincing or otherwise motivating individuals or groups 	<ul style="list-style-type: none"> <input type="checkbox"/> negotiate effectively by working towards an agreement that may involve exchanging specific resources or resolving divergent interests
	Teamwork, Leadership and Service	<ul style="list-style-type: none"> <input type="checkbox"/> participate as an effective member of a team by working cooperatively with others and contributing ideas, suggestions and effort <input type="checkbox"/> recognize and respect peoples' diversity and individual differences 	<ul style="list-style-type: none"> <input type="checkbox"/> serve clients and customers effectively by listening carefully to understand their needs and by providing as much assistance as possible to satisfy their expectations 	<ul style="list-style-type: none"> <input type="checkbox"/> lead when appropriate, mobilizing the group for high performance
	Demonstrating Responsibility (Safety and Accountability)	<ul style="list-style-type: none"> <input type="checkbox"/> demonstrate high standards in attendance and punctuality <input type="checkbox"/> be trustworthy and honest in dealing with others <input type="checkbox"/> follow safe procedures consistently and recognize and eliminate potential hazards. 	<ul style="list-style-type: none"> <input type="checkbox"/> understand and evaluate the impact on self and the organization for breaking with organizational or societal values and regulations. 	<ul style="list-style-type: none"> <input type="checkbox"/> work hard to excel at setting and meeting goals, doing tasks, setting high standards and paying attention to important details.

STUDENT: _____

MODULE: INF _____

STANDARD	Students working at standard must demonstrate preparation of mailable documents (no errors in text and format) and appropriate use of the software functions as noted in the checklists below. The column to the left of the checklists indicate the at standard level of competencies at the introductory and intermediate levels. The rating scale at the bottom defines the different levels of competencies. Note: the list of software functions may need to be adjusted to reflect software that is available.
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At Standard	Introductory Level	At Standard	Intermediate Level
1	Document Production: Create a database with a minimum of <input type="checkbox"/> 5 fields and 10 records <input type="checkbox"/> enter data -- alphabetic and numeric fields (labels and values) <input type="checkbox"/> calculate numeric data using basic formulas	2	Document Production: Create two databases consisting of <input type="checkbox"/> multiple files and fields type <input type="checkbox"/> a hierarchical database <input type="checkbox"/> a relational database
1	Software Functions: Manipulate a database file using the following functions <input type="checkbox"/> open/create/save files <input type="checkbox"/> format data/text for fields <input type="checkbox"/> sort (alphabetic, numeric and subject) <input type="checkbox"/> sequence <input type="checkbox"/> proofread and edit using cut, copy, paste, clear <input type="checkbox"/> calculate data <input type="checkbox"/> retrieve information <ul style="list-style-type: none"> • query view • form view • list view • report view <input type="checkbox"/> use appropriate cursor movement/tools/commands to move through records <input type="checkbox"/> use help functions and references <input type="checkbox"/> preview and print records <input type="checkbox"/> produce an accurate and well-organized report <input type="checkbox"/> print a report	2	Software Functions: Manipulate data within a database using a minimum of 5 of the following <input type="checkbox"/> scan, import data <input type="checkbox"/> query <input type="checkbox"/> merge with another document <input type="checkbox"/> incorporate macros <input type="checkbox"/> linking <input type="checkbox"/> sequencing/sorting <input type="checkbox"/> apply formulas <input type="checkbox"/> create chart/graphic data representations <input type="checkbox"/> preview and print records <input type="checkbox"/> produce accurate and well-organized reports <input type="checkbox"/> print reports

RATING SCALE	4. Always demonstrates <u>all</u> of the designated techniques without prompting, showing fluency and efficiency of movement.	3. <u>Usually</u> demonstrates <u>all</u> of the designated techniques, <u>seldom</u> needs prompting, most functions are handled with fluency and efficiency	2. <u>Generally</u> demonstrates <u>most</u> of the designated techniques, <u>seldom</u> needs prompting,	1. Can demonstrate designated techniques, but occasionally needs prompting	0. Cannot demonstrate designated techniques
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STUDENT:

MODULE: INF

STANDARD Students must demonstrate preparation of mailable documents (no errors in text or format), including the features noted below. The checklists below indicate the minimum rating for *at standard* performance at the introductory, intermediate and advanced levels.. The rating scale at the bottom defines the different levels of competencies.

At Standard (Above Standard)	Introductory Level	At Standard (Above Standard)	Intermediate Level	At Standard (Above Standard)	Advanced Level
1	Correspondence <ul style="list-style-type: none"> one page letter return address/letterhead date inside address salutation body closing signers identification use of one letter style 	2	Correspondence: same as Intro plus <ul style="list-style-type: none"> format from rough draft special notations use of different letter styles subject line attention line Memo <ul style="list-style-type: none"> basic memo parts use of memo style 	3	Correspondence: same as Intermediate plus <ul style="list-style-type: none"> two page letter choice of letter style use of two of the following (merging of five or more names/addressees, use of macros, insert of table(s), enumeration, graphics) Memo <ul style="list-style-type: none"> reference notations macros to format heading
1	Reports <ul style="list-style-type: none"> 1 1/2 page report from formatted and unformatted sources title page headings/subheadings references headers/footers pagination 	2	Reports <ul style="list-style-type: none"> two page report from unformatted rough draft title page headings/subheadings references headers/footers pagination outline display paragraph 	3	Reports <ul style="list-style-type: none"> four page report from unformatted rough draft title page headings/subheadings references headers/footers pagination outlines table of contents appendix 3 of the following (table, enumeration, chart, graphics, display paragraph, columns, spreadsheet or database information, index)
1	Tables <ul style="list-style-type: none"> two column table main title and subtitles borders column headings 	2	Tables <ul style="list-style-type: none"> multi-column table main title and subtitles borders column headings footnotes sorted box/ruled 	3	Tables <ul style="list-style-type: none"> rough draft multi-column table main title and subtitles use of 4 of the following (graphics, merge, graph, parallel columns, column headings, footnotes, borders, shading, sorted, letterhead, box/ruled)

RATING SCALE	4. <u>Always</u> demonstrates <u>all</u> of the designated techniques without prompting, showing fluency and efficiency of movement.	3. <u>Usually</u> demonstrates <u>all</u> of the designated techniques, seldom needs prompting, most functions are handled with fluency and efficiency	2. <u>Generally</u> demonstrates <u>most</u> of the designated techniques, <u>seldom</u> needs prompting.	1. Can demonstrate designated techniques, but occasionally needs prompting	0. Cannot demonstrate designated techniques
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STUDENT:

MODULE: INF

STANDARD	Students working at standard must demonstrate preparation of mailable documents (no errors in text or format) and appropriate use of the software functions as noted in the checklists below. The column to the left of the checklists indicate the at standard level of competencies at the introductory and intermediate levels. The rating scale at the bottom defines the different levels of competencies. Note: the list of software functions may need to be adjusted to reflect software that is available.
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At Standard	Introductory Level	At Standard	Intermediate Level
1	Document Production: Create a spreadsheet containing a minimum of the following <ul style="list-style-type: none"> <input type="checkbox"/> create four columns, five rows, <input type="checkbox"/> enter data -- alphabetic and numeric columns (labels and values) <input type="checkbox"/> calculate numeric data using basic formulas (sum, avg) <input type="checkbox"/> use appropriate headings <input type="checkbox"/> produce an accurate and well-organized document <input type="checkbox"/> use appropriate headers and/or footers, references 	2	Document Production: Design and create two spreadsheets consisting of <ul style="list-style-type: none"> <input type="checkbox"/> multiple rows and columns of alphabetic, numeric and alphanumeric data <input type="checkbox"/> calculate data using customized formulas <input type="checkbox"/> use appropriate headings <input type="checkbox"/> use relative and absolute addresses <input type="checkbox"/> emphasize the ability to predict/forecast using "what if" scenarios <input type="checkbox"/> produce an accurate and well-organized document <input type="checkbox"/> use appropriate headers, footers and references
1	Software Functions: Manipulate data within a spreadsheet using the following functions <ul style="list-style-type: none"> <input type="checkbox"/> open/create/save files <input type="checkbox"/> format cells, rows, columns <ul style="list-style-type: none"> • alignment data (left, right, centre) • number format (\$, %, decimals) • column width, row height • font (style, size) • borders, shading • formulae <input type="checkbox"/> proofread and edit cells, rows, columns, data • copy/move • clear/insert/delete/replace <input type="checkbox"/> sort (alphabetically or numerically) <input type="checkbox"/> display chart graphics of data <input type="checkbox"/> split screen/freeze <input type="checkbox"/> use help functions and references <input type="checkbox"/> print report (portrait or landscape) 	2	Software Functions: Manipulate data within a spreadsheet using a minimum of 5 of the following <ul style="list-style-type: none"> <input type="checkbox"/> use all resident software functions <input type="checkbox"/> format cells, rows, columns <input type="checkbox"/> incorporate macros <input type="checkbox"/> sort data (alphabetically and numerically) <input type="checkbox"/> calculate/recalculate "what if" scenarios <input type="checkbox"/> format data range/reports <input type="checkbox"/> incorporate chart graphics (use of titles, legends, colour, pattern, grids, borders) <input type="checkbox"/> merge data with other documents <input type="checkbox"/> print reports in both portrait and landscape

RATING SCALE	4. Always demonstrates <u>all</u> of the designated techniques without prompting, showing fluency and efficiency of movement.	3. Usually demonstrates <u>all</u> of the designated techniques, <u>seldom</u> needs prompting, most functions are handled with fluency and efficiency	2. Generally demonstrates <u>most</u> of the designated techniques, <u>seldom</u> needs prompting,	1. Can demonstrate designated techniques, but occasionally needs prompting	0. Cannot demonstrate designated techniques
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ASSESSMENT CHECKLIST: TEXT - DATA ENTRY

INFTDENT

STUDENT :

MODULE: INF

STANDARD	Students working at standard must demonstrate the technique requirements outlined in the checklists below. The columns to the left of the checklists indicate the minimum rating for at standard performance for introductory, intermediate and advanced level modules. The rating scale on the right-hand side defines the levels of competencies and should be applied when assessing student performance.
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Observation of Student	Minimum Standard (Intro Level)	Minimum Standard (Inter Level)	Minimum Standard (Adv. Level)	TECHNIQUE REQUIREMENTS <i>The student does:</i>
—	4	4	4	Eye Focus: Not look at keys when doing basic text/data entry (Observations should occur during timings or drills on straight copy materials, using the syllabic intensity defined within the module). Keystroking: <ul style="list-style-type: none"> • use correct fingering for alphabetic, punctuation, numeric, and symbol keys as specified in the module • begin and end all keystrokes at home row position • anchor the appropriate fingers when entering text • use the thumb for the spacebar • use shift and tab keys with correct fingers
—	2	3	3	Service Keys: Use appropriate fingers / hand movements to: <ul style="list-style-type: none"> • edit (e.g. insert, delete, backspace) • move around document (home, end, page up, page down, arrows) • activate function keys
—	1	2	3	Body Position: Maintain proper, relaxed body position: <ul style="list-style-type: none"> • comfortable distance from keyboard (e.g. hands-span away) • centered in front of keyboard • back erect, lower back against back of chair • feet flat on floor • wrists level, not resting on keyboard • arms close to body

Rating Scale

4	Always demonstrates <u>all</u> of the designated techniques without prompting, showing fluency and efficiency of movement.
3	Usually demonstrates <u>all</u> of the designated techniques, <u>seldom</u> needs prompting, most functions are handled with fluency and efficiency
2	Generally demonstrates <u>most</u> of the designated techniques, <u>seldom</u> needs prompting,
1	Can demonstrate designated techniques, but occasionally needs prompting
0	Cannot demonstrate designated techniques

ASSESSMENT CHECKLIST: WORD PROCESSING SOFTWARE FUNCTIONS

INFWORD

STUDENT:

MODULE: INF

STANDARD	Students working at standard must demonstrate appropriate use of the software functions as noted in the checklists below. The columns to the left of the checklists indicate the minimum rating for at standard performance for the introductory, intermediate and advanced level modules. The rating scale at the bottom defines the different levels of competencies. Note: the list of software functions may need to be adjusted to reflect software that is available.
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At Standard (Above Standard)	Introductory Level	At Standard (Above Standard)	Intermediate Level	At Standard (Above Standard)	Advanced Level
1	Format Text: <ul style="list-style-type: none"> • rulers / margins • line spacing • positioning / centering (horizontal, vertical.) • tabs • tables • font styles / sizes • footers/headers • paginate text 	2	Format Text: <ul style="list-style-type: none"> • rulers / margins • line spacing • positioning / centering (horizontal, vertical.) • tabs • tables • font styles / sizes • footers/headers • paginate text • columns • bulleted and numbered lists • borders 	3	Format Text: <ul style="list-style-type: none"> • rulers / margins • line spacing • positioning / centering (horizontal, vertical) • tabs • tables • font styles / sizes • footers/headers • paginate text • columns <ul style="list-style-type: none"> • bulleted and numbered lists • borders • footnotes • form letters • annotations • labels • tables of contents • indexes
1	Proofread / Edit Text <ul style="list-style-type: none"> • move through document (cursors, goto, select) • move (cut and paste) • spell check • grammar check • search and replace • delete text 	2	Proofread / Edit Text <ul style="list-style-type: none"> • move through document (cursors, goto, select) • move (cut and paste) • spell check • grammar check • search and replace • delete text • revision marks 	3	Proofread / Edit Text <ul style="list-style-type: none"> • move through document (cursors, goto, select) • move (cut and paste) • spell check • grammar check • search and replace • delete text • merge / sort text • revision marks • compare versions
		2	Special Features <ul style="list-style-type: none"> • macros • glossaries / libraries • templates 	3	Special Features <ul style="list-style-type: none"> • macros • glossaries / libraries • templates • insert graphics • bookmarks / fields

RATING SCALE	4. <u>Always</u> demonstrates <u>all</u> of the designated techniques without prompting, showing fluency and efficiency of movement.	3. <u>Usually</u> demonstrates <u>all</u> of the designated techniques, <u>seldom</u> needs prompting, most functions are handled with fluency and efficiency	2. <u>Generally</u> demonstrates <u>most</u> of the designated techniques, <u>seldom</u> needs prompting,	1. Can demonstrate designated techniques, but occasionally needs prompting	0. Cannot demonstrate designated techniques
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ASSESSMENT CHECKLIST: WORKSTATION ROUTINES AND MANAGEMENT

INFWRKSTN

STUDENT :

MODULE: INF

Students working at **standard** must demonstrate the technique requirements outlined in the checklists below. The columns to the left of the checklists indicate the minimum rating for *at standard* performance for introductory, intermediate and advanced level modules. The rating scale on the right-hand side defines the levels of competencies and should be applied when assessing student performance.

Observation of Student	Minimum Standard (Intro Level)	Minimum Standard (Inter Level)	Minimum Standard (Adv. Level)	TECHNIQUE REQUIREMENTS <i>The student does:</i>
—	1	2	3	Work Station Use: <ul style="list-style-type: none"> <input type="checkbox"/> appropriately adjust monitor, keyboard, desk, chair, and other equipment to ensure workstation environment is ergonomically appropriate, comfortable and efficient to work in. <input type="checkbox"/> maintain good body position <input type="checkbox"/> ensure safe and secure handling of hardware, software and supplies <input type="checkbox"/> maintain an organized, neat workstation
—	2	3	4	File Management <ul style="list-style-type: none"> <input type="checkbox"/> label, store, access, back-up, and use files and disks appropriately <input type="checkbox"/> create and use appropriate filenames and directories to organize information in a logical way <input type="checkbox"/> save, retrieve, move, copy, delete, rename files and directories as required
—	1	2	3	Time Management / Organization <ul style="list-style-type: none"> <input type="checkbox"/> locate / use multiple resources when needing assistance (e.g. print, on-line, teacher, peers) <input type="checkbox"/> allow adequate time for set-up and close-down procedures <input type="checkbox"/> manage time effectively
—	2	3	3	Professionalism <ul style="list-style-type: none"> <input type="checkbox"/> take initiative in evaluating and adjusting work processes and products to ensure they meet or exceed the standard <input type="checkbox"/> observes ethical, legal and security measures in handling software and hardware (copyright, privacy, confidentiality) <input type="checkbox"/> responds to problems and accepts challenges by thinking critically and creatively <input type="checkbox"/> uses related terminology appropriately

Rating Scale:

4	Always demonstrates <u>all</u> of the designated techniques without prompting, showing fluency and efficiency of movement.
3	Usually demonstrates <u>all</u> of the designated techniques, <u>seldom</u> needs prompting, most functions are handled with fluency and efficiency
2	Generally demonstrates <u>most</u> of the designated techniques, <u>seldom</u> needs prompting,
1	Can demonstrate designated techniques, but occasionally needs prompting
0	Cannot demonstrate designated techniques

ASSESSMENT CHECKLIST:	A. FILE MANAGEMENT PROCEDURES B. TEXT / DATA ENTRY C. COMPUTER WORKSTATION COMPONENTS	INF101-1
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STUDENT: _____

DATE: _____

STANDARD	Students working at standard will demonstrate appropriate use of <i>all</i> of the points listed on the following three charts, but may need occasional prompting. Students working above standard will seldom need prompting. Note the file management procedures and workstation components may need to be adjusted to better reflect the type of computer equipment and software available.
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A. FILE MANAGEMENT PROCEDURES

Observation of Student	The student can:
Y N	1. boot /log-in computer and access programs
Y N	2. access programs
Y N	3. retrieve files
Y N	4. create files
Y N	5. save files
Y N	6. open files
Y N	7. print files
Y N	8. back-up files
Y N	9. edit files
Y N	10. copy files
Y N	11. move between files / programs
Y N	12. format disks
Y N	13. delete files
Y N	14. names / renames files

C. COMPUTER WORKSTATION COMPONENTS

	The student can identify and explain use of:
	Hardware Architecture, Configurations, Peripherals
Y N	1. input systems (e.g. keyboard, mouse, voice, tablet)
Y N	2. operating platforms / systems (e.g. MAC, DOS)
Y N	3. output devices (e.g. monitor, printer)
Y N	4. communication devices - (e.g. modem)
Y N	5. storage mediums (floppy disks, hard drive, CD Rom)
	Software
Y N	1. system management
Y N	2. application (word processing, spreadsheet, integrated, etc.)
Y N	3. shell (e.g. Windows, Finder)
	4. utility

B. TEXT-DATA ENTRY PROCEDURES

Observation of Student	The student:	Student Work	The student:
	demonstrates "touch keyboarding" with:		produces error-free documents by:
Y N	1. alphabetic keys	Y N	1. proofreading text and data (manually and with spell and grammar checks if available)
Y N	2. numeric keys and keypad	Y N	2. editing text and data
Y N	3. basic punctuation keys		

STUDENT :

MODULE: INF

STANDARD	Students must prepare and present a report which meets the requirements outlined in the chart. The column to the left of the chart indicates the at standard level of competency. The rating scale on the right-hand side defines the levels of competencies and should be applied when assessing student performance. The minimum rating for at standard performance is level 1 , a rating of 2 or above indicates above standard performance.
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Observation of Student	Minimum Standard	PRESENTATION - REPORT REQUIREMENTS <i>The student does:</i>
—	1	Preparation and Planning: <ul style="list-style-type: none"> • set goals and follow instructions accurately • respond to directed questions and following necessary steps to find answers • access basic in-school / community information sources • interpret and organize information into a logical sequence • record information accurately using correct technical terms • use time effectively
—	1	Presentation and Reporting <ul style="list-style-type: none"> • demonstrate effective use of one or more communication media; e.g., <i>Written:</i> spelling, punctuation, grammar, and basic format <i>Oral:</i> voice projection, body language <i>Audio-Visual:</i> techniques, tools
—	1	Content: The report provides a thorough <ul style="list-style-type: none"> • description of current or emerging technological initiative or issue • actual or potential impact on individual and society • list of sources of information

Rating Scale:

4	Met project / task objectives by independently selecting and implementing the most appropriate course of action. Problems were solved in effective and creative ways. Quality and productivity exceed standards.
3	Met project / task objectives by independently selecting and using resources / processes efficiently and effectively. No errors or deficiencies are noted. Quality and productivity consistently meet standards
2	Met project / task objectives with limited assistance in planning, solving problems and in selection and use of resources / processes. Only minor errors / deficiencies are noted. quality and productivity meet standards, but are occasionally inconsistent.
1	Completed task as directed, demonstrating rudimentary skills / completeness by following a guided course of action. Quality and productivity meet standard but are inconsistent.
0	Not yet completed task, major deficiencies and / or errors are evident

STUDENT: _____

MODULE: INF _____

STANDARD	Students working at standard must demonstrate preparation documents and appropriate use of the software functions as noted in the checklists below. The column to the left of the checklist indicates the at standard level of competencies at the introductory level. The rating scale at the bottom defines the different levels of competencies. Note: the list of software functions may need to be adjusted to reflect software that is available.
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At Standard	Introductory	Level
1	<p>Document Production:</p> <p>Reproduction of a document containing</p> <ul style="list-style-type: none"> <input type="checkbox"/> text <input type="checkbox"/> graphics (paint, draw and/or import) <input type="checkbox"/> use of design principles 	<p>Create an original document consisting of</p> <ul style="list-style-type: none"> <input type="checkbox"/> text <input type="checkbox"/> graphics (paint, draw and/or import) <input type="checkbox"/> use of design principles
1	<p>Software Functions and Graphic Tools: Use appropriately a variety of paint/draw software functions and tools including</p> <ul style="list-style-type: none"> <input type="checkbox"/> File Functions <ul style="list-style-type: none"> • create and save files • load files <input type="checkbox"/> Editing Functions <ul style="list-style-type: none"> • select • cut, copy, paste • delete, erase • cropping <input type="checkbox"/> Import Graphics <ul style="list-style-type: none"> • scan graphic images • import from clipart files <input type="checkbox"/> Output Functions <ul style="list-style-type: none"> • preview • print <input type="checkbox"/> Layout Functions <ul style="list-style-type: none"> • grid 	<ul style="list-style-type: none"> <input type="checkbox"/> Text Tools and Commands <ul style="list-style-type: none"> • fonts and style palette <input type="checkbox"/> Paint and Draw Tools <ul style="list-style-type: none"> • colour palette • fill • marque, lasso • ovals • rectangles • lines • polygons • line options • resizing (placing) • repositioning

RATING SCALE	4. Always demonstrates all of the designated techniques without prompting, showing fluency and efficiency of movement.	3. Usually demonstrates all of the designated techniques, seldom needs prompting, most functions are handled with fluency and efficiency	2. Generally demonstrates <u>most</u> of the designated techniques, seldom needs prompting,	1. Can demonstrate designated techniques, but occasionally needs prompting	0. Cannot demonstrate designated techniques
--------------	--	--	---	--	---

REFERENCE CHART: KEYBOARDING AND NUMBERPAD RATES

INFKEYNB

Module	Keyboarding Rate		Numberpad Rate		Module	Keyboarding Rate		Numberpad Rate	
	WPM ★	Weighting	KPM ★ ★	Weighting		WPM ★	Weighting	KPM ★ ★	Weighting
INF102 Keyboarding I	20	20/30	80-83	5/10	INF303 Keyboarding IV	50	32/50	150-155	5/10
	21-22	22/30	84-87	6/10		51	34/50	156-161	6/10
	23-24	24/30	88-91	7/10		52	36/50	162-167	7/10
	25-26	26/30	92-95	8/10		53	38/50	168-173	8/10
	27	28/30	96-97	9/10		54	40/50	174-178	9/10
	28	29/30	98	10/10		55	42/50	179	10/10
	29	30/30				56	44/50		
	30	32/50	100-103	5/10		57	46/50		
	31	34/50	104-107	6/10	INF304 Keyboarding V	60	32/50	180-183	10/20
INF203 Keyboarding II	32	36/50	108-111	7/10		61	34/50	184-187	12/20
	33	38/50	112-115	8/10		62	36/50	188-191	14/20
	34	40/50	116-118	9/10		63	38/50	192-195	16/20
	35	42/50	119	10/10		64	40/50	196-198	18/20
	36	44/50				65	42/50	199	20/20
	37	46/50				66	44/50		
	38	48/50				67	46/50		
	39	50/50				68	48/50		
	40	32/50	120-125	5/10	INF305 Keyboarding VI	69	50/50		
INF204 Keyboarding III	41	34/50	126-131	6/10		70	32/50	200-203	10/20
	42	36/50	132-137	7/10		71	34/50	204-207	12/20
	43	38/50	138-143	8/10		72	36/50	208-211	14/20
	44	40/50	144-148	9/10		73	38/50	212-215	16/20
	45	42/50	149	10/10		74	40/50	216-219	18/20
	46	44/50				75	42/50	220	20/20
	47	46/50				76	44/50		
	48	48/50				77	46/50		
	49	50/50				78	48/50		
						79	50/50		

★ WPM = words per minute
 ★ ★ KPM = keystrokes per minute

LINKAGES/TRANSITIONS

The Information Processing strand supports the integration of computers in all CTS strands as well as in all core or other complementary programs. In addition, the competencies developed in Information Processing strand support a wide range of transitions into the workplace or related post-secondary programs.

WITH OTHER CTS STRANDS

There are direct and indirect linkages between Information Processing and all of the CTS strands, particularly where students are able to use computers as a learning tool. For example, students in the following strands could use the computer to:

Foods	● determine nutritional content or design and print menus
Legal Studies	● undertake research of precedents (database) or access some of the legal libraries or bulletin boards
Tourism Studies	● design room and table layouts for a banquet or access the travel databases
Communication Technology	● apply knowledge of desktop publishing software in projects requiring layout and design
Financial Management	● apply knowledge of spreadsheets and financial management software to manage personal and business finances
Design Studies	● use understanding of software applications as a basis for learning about computer assisted design software
Enterprise and Innovation	● use competency in productivity software packages to prepare proposals and analyze the financial implications of ventures
Career Transitions	● use competency in word processing and graphic design to prepare resumes and related correspondence.

Note that the project modules from the Career Transitions strand may be combined with modules from the Information Processing strand to provide increased opportunity for students to develop expertise and refine their competencies in a particular module or modules. For example, the project modules could enhance the programming theme with the following projects:

- machine language programming
- programming graphics
- dynamic variables
- systems design/analysis
- programming simulations.

Integrating Information Processing modules within Other Strands

Many Information Processing modules can be effectively integrated into other strands and other core and complementary courses. For example:

Communication Technology	supporting layout and design concepts: <ul style="list-style-type: none">● Graphics Tools● Electronic Publishing I● Electronic Publishing II
Electro-Technologies	supporting the computer logic systems: <ul style="list-style-type: none">● Programming I – V● Programming Applications I – III

WITH OTHER SECONDARY PROGRAMS

Refer to the charts in this section for linkages with junior and senior high school Math programs. Linkages with other secondary programs are in the process of being defined.

TO THE WORKPLACE

The National Occupational Classification (NOC) and provincial Occupation Profiles (POP) chart in this section indicates occupations for which Information Processing provides a foundation. High school students could potentially move into:

- 12 occupations requiring a high school education
- 18 occupations that require further education at a college or technical institution (possibly obtaining advanced standing or preferred entrance in the post-secondary program)
- 10 occupations that require further education at the university level (possibly obtaining preferred entrance into a program).

TO RELATED POST-SECONDARY PROGRAMS

Refer to the chart in this section for a summary of related programs offered at Alberta post-secondary institutions.

Career and Technology Studies Strand

Information Processing

Occupation Profile	NOC/POP	A	B	C	D
Administrative Officers	NOC	✓		✓	✓
Computer Engineers	BOTH				✓
Computer Operators	BOTH	✓		✓	
Computer Programmers	BOTH			✓	✓
Computer Service Technologist	POP			✓	✓
Computer Systems Analyst	BOTH			✓	✓
Correspondence, Publication and Related Clerks	NOC	✓			
Data Entry Clerks	NOC	✓		✓	
Demographer	POP				✓
Desktop Publishing Specialist	POP			✓	✓
Economist	POP				✓
Executive Assistant	NOC	✓		✓	
File Clerk	BOTH	✓			
General Office Clerks	BOTH	✓		✓	
Health Record Administrator	POP			✓	
Health Record Technician	POP			✓	
Information Systems Consultant	BOTH				✓
Librarian	POP			✓	✓
Library Clerk	POP	✓			
Library Technician	POP			✓	
Medical Transcriptionist	POP			✓	
Office Machine Technician	POP			✓	
Receptionist	POP	✓			
Secretaries (except Legal and Medical)	BOTH	✓		✓	
Survey Interviewers and Statistical Clerks	BOTH	✓			
Typesetter and Related Occupations	NOC			✓	
Typist and Word Processor Operators	BOTH	✓		✓	

A: High School Education

B: Apprenticeship

C: College or Vocational Education

D: University

[illegible]

Code:	B	Bachelor's Degree	V	Varies
M	Master's Degree	1t	One-year transfer	
PhD	Doctoral Degree	2t	Two-year transfer	
C	Certificate (1 year or less)	w	weeks	
D	Diploma (2 years)	m	months	
		y	years	

This chart was adapted from *It's About Time: to start thinking about your future*, published by Alberta Advanced Education & Career Development Education).

INFORMATION PROCESSING: Linkages with Related Post-Secondary Programs

	Public Colleges												Private Colleges					Tech. Institute		Universities		Vocational Colleges								
	Alberta College of Art	Fairview College	Grande Prairie Regional College	Grant MacEwan Community College	Keyano College	Lakeland College	Lethbridge Community College	Medicine Hat College	Mount Royal College	Olds College	Red Deer College	Apprenticeship Trade	Alberta College	Augustana University College	Canadian Union College	Concordia College	King's College, The	North American Baptist College	NAIT	SAIT	Banff Centre	Athabasca University	University of Alberta	University of Calgary	University of Lethbridge	AVC - Calgary	AVC - Edmonton	AVC - Lac La Biche	AVC - Lesser Slave Lake	
Computer Applications						V	C												VC	V										
Computer Maintenance/Repair		4m																	CD	V										
Computer Management/Management Information Systems			D	D	D	D	D												VC			C	C							
Computer Programming (Software)		CD			D	D	D			D				V					CD	VCD			C	C						
Computer/Computing Science		1t					2t	CD	2t	1t			B			1t	V	V		VD		CB	BM	PhD	BM					
Computer Marketing & Business Administration								D																						
Desktop Publishing																			C	V										
Computer Engineering Technology							CD	D											D	VD										
Electrical/Electronic Engineering Technologies							CD												CD	D										
Telecommunications Engineering Technology																			CD	D										
Medical/Clerical														2t					CD	VC		C				C				
Humanities			2t	2t		1t	2t	2t		2t			B	B	B	B	2t					CB	BM	PhD	BM					
Library & Information Management/Technology			D																	D			M							
Mathematics/Statistics/Actuarial Science		2t					1t	1t		2t			B	V	B	B	V					BM	PhD	PhD	BM					

This chart was adapted from *It's About Time: to start thinking about your future*, (1993-94, published by Alberta Advanced Education & Career Development Education).

Code: B Bachelor's Degree
M Master's Degree
PhD Doctoral Degree
C Certificate (1 year or less)
D Diploma (2 years)

V Varies
1t One-year transfer
2t Two-year transfer
w weeks
m months
y years

CAREER AND TECHNOLOGY STUDIES/MATH OBJECTIVE MATCH

CAREER & TECHNOLOGY STUDIES					MATH		ACTIVITY
Module	Objective/Concept	Course	Unit	Concept/Skill			
INF104 Data	Formula Use Help functions and references as appropriate	Math 9-10	•Number Systems	Order of operations			
INF106 Workstation use	Organize data, information, resources	Grade 7-8-9	•Data Management	Types of graphing			Construct graphs, bar graphs, line graphs, circle graphs and picture graphs.
FIN108 Computer Software	Describe constants, variables	Math 9-10	•Algebra	Manipulation of formulas			Solving for unknown variables.
INF208 Data Entry (Input)	Demonstrate appropriate key commands to: Open/create files/templates Enter data Number pad values Keyboard-labels/formula Paste, import data Replicate Name files.	Math 9	•Algebra	Formula Manipulation			Order of operations
INF209 Data Manipulation (process)	Create/import data, and use formula	Grade 9-10	•Number Systems	Formulas			Order of operations to create formulas rewriting formulas for various variables.

CAREER AND TECHNOLOGY STUDIES/MATH OBJECTIVE MATCH

CAREER & TECHNOLOGY STUDIES			MATH		ACTIVITY
Module	Objective/Concept	Course	Unit	Concept/Skill	
INF217 Algorithms	Identify/describe the problem List each step required to solve the problem develop the appropriate logic to achieve the solution Apply structured programming constructs to create a schematic/flowchart/pseudocode indicating how the solution will be achieved	All grades		Problem Solving	
INF217 Algorithms Classes	Identify/describe the problem List each step required to solve the problem develop the appropriate logic to achieve the solution Apply structured programming constructs to create a schematic/flowchart/pseudocode indicating how the solution will be achieved	All grades		Problem Solving	
INF218 Algorithms	Modify and existing algorithm(s) Identify/describe the problem List each step required to solve the problem Develop the appropriate logic to achieve the solution Apply structured programming constructs to modify/create a schematic/flowchart/pseudocode indicating how the solution will be achieved	All Grades		Problem Solving	

CAREER AND TECHNOLOGY STUDIES/MATH OBJECTIVE MATCH

CAREER & TECHNOLOGY STUDIES		MATH			ACTIVITY
Module	Objective/Concept	Course	Unit	Concept/Skill	
INF218 Algorithms Classes	Modify and existing algorithm(s) Identify/describe the problem List each step required to solve the problem Develop the appropriate logic to achieve the solution Apply structured programming constructs to modify/create a schematic/flowchart/pseudocode indicating how the solution will be achieved	All Grades		Problem Solving	
INF219 Algorithms	Modify and existing algorithm(s) Identify/describe the problem List each step required to solve the problem Develop the appropriate logic to achieve the solution Apply structured programming constructs to modify/create a schematic/flowchart/pseudocode indicating how the solution will be achieved	All Grades		Problem Solving	Rewriting formulas with a different subject.
INF219 Computer Language Syntax	Calculations/manipulations/decision Branching/looping/sub-routines/functions	Math 10	•Algebra	Formula Manipulation	

CAREER & TECHNOLOGY STUDIES		MATH		ACTIVITY	
Module	Objective/Concept	Course	Unit	Concept/Skill	
Algorithms Classes	<p>Modify and existing algorithm(s) Identify/describe the problem List each step required to solve the problem Develop the appropriate logic/data components required to achieve the solution Develop the appropriate methods of accessing data/methods in derived data types compare iterative and recursive routines/structures measure the efficiency of comparable routines/structures Apply structured programming constructs to modify/create a schematic/flowchart/pseudocode indicating how the solution will be achieved</p>	All Grades		Problem Solving	
INF220 Algorithms Classes	<p>Modify existing/develop new algorithms/classes Identify/describe the problem List each step required to solve the problem/list the required components of the data structure Develop the appropriate logic/data components required to achieve the solution Identify generic characteristics of programming languages Identify steps involved in problem solving independent of programming language. Apply structured programming constructs to modify/create a schematic/flowchart/pseudocode indicating how the solution will be achieved</p>	All grades		Problem Solving	
Computer Language Syntax	Calculations/manipulations/decision Branching/looping/sub-routines/functions	Math 10		Formula Manipulation	

CAREER AND TECHNOLOGY STUDIES/MATH OBJECTIVE MATCH

CAREER & TECHNOLOGY STUDIES		MATH		ACTIVITY
Module	Objective/Concept	Course	Unit	
INF315 Algorithms Classes	<p>Modify existing/develop new algorithms/classes</p> <p>Identify/describe the problem</p> <p>List each step required to solve the problem/list the required components of the data structure</p> <p>Develop the appropriate logic/data components required to achieve the solution</p> <p>Identify generic characteristics of programming languages</p> <p>Identify steps involved in problem solving independent of programming language</p> <p>Apply structured programming constructs to modify/create a schematic flowchart/pseudocode indicating how the solution will be achieved</p>	All Grades		Problem Solving

CAREER & TECHNOLOGY STUDIES

INFORMATION PROCESSING

LEARNING RESOURCE GUIDE

INTERIM 1994
(SEPTEMBER 1994 - SEPTEMBER 1997)

MAY 1995

Alberta
EDUCATION
CURRICULUM STANDARDS BRANCH

Comments and suggestions are welcome and should be directed to:

Career and Technology Studies Unit
Alberta Education
Curriculum Standards Branch
11160 Jasper Avenue
Edmonton, AB
T5K 0L2
Telephone: 422-4872
Fax: 422-5129

TABLE OF CONTENTS

INTRODUCTION	I.1
CTS and the Resource-based Classroom	I.1
Purpose and Organization of this Document	I.1
How to Order	I.2
Resource Policy	I.2
 AUTHORIZED RESOURCES	 I.3
Basic Learning Resources	I.3
Support Learning Resources	I.5
Teaching Resources	I.21
Spreadsheets	I.24
 ADDITIONAL SOURCES	 I.35
Teacher-Librarians	I.35
Alberta Education Sources	I.35
Other Government Sources	I.36
 DISTRIBUTOR DIRECTORY	 I.39

INTRODUCTION

CTS AND THE RESOURCE-BASED CLASSROOM

Career and Technology Studies (CTS) encourages teachers to establish a resource-based classroom, where a variety of appropriate, up-to-date print and non-print resources are available. Learning resources identified for CTS strands include print, software, interactive videos, manipulatives, student learning guides and tutorials.

The resource-based classroom approach accommodates a variety of instructional strategies and teaching styles, and supports individual or small group planning. It provides students with opportunities to interact with a wide range of information sources in a variety of learning situations. Students in CTS are encouraged to take an active role in managing their own learning. Ready access to a strong resource base enables students to learn to screen and use information appropriately, to solve problems, to meet specific classroom and learning needs, and to develop competency in reading, writing, speaking, listening and viewing.

PURPOSE AND ORGANIZATION OF THIS DOCUMENT

The purpose of this document is to help teachers identify a variety of resources to meet their needs and those of the students taking the new Information Processing curriculum. It is hoped that this practical guide to resources will help teachers develop a useful, accessible resource centre that will encourage students to become independent, creative thinkers.

This document is organized as follows:

- Authorized Resources:
 - basic learning resources
 - support learning resources
 - teaching resources
- Other Resources
- Additional Sources.

Some resources in the guide have been authorized for use in some or all of the CTS strands, e.g., the 11-video Career and Technology Studies series produced by ACCESS Network. Full information is provided in the appropriate section of this resource guide.

Each resource in the guide provides bibliographic information, an annotation where appropriate, and a correlation to the Information Processing modules. The distributor code for each entry will facilitate ordering resources. It is recommended that teachers preview all resources before purchasing, or purchase one copy for their reference and additional copies as required.

Distributor Code	Resources		Levels/Mod. No.		
			1	2	3
ATEC	Author	Title	101	201	301
	Bibliographic Information				
	Annotation				

Distributor
Code - see
Distributor
Directory

1 - Introductory
2 - Intermediate
3 - Advanced
Indicates module
number

HOW TO ORDER

Most authorized resources are available from the Learning Resources Distributing Centre (LRDC) at:

12360 - 142 Street
Edmonton, AB
T5L 4X9
Telephone: 427-2767
Fax: 422-9750

Purchase order numbers have been provided (where possible) for the resources available through the LRDC. The section on Additional Sources lists a variety of other places to find information related to this strand. In addition, at the back of this document is a Distributor Directory, which contains the name and address of each publisher/distributor referred to in the resource list. Note that in some cases a resource may be published by one company but distributed through another.

The information contained is as complete and accurate as possible.

RESOURCE POLICY

For further information on resource policy and definitions, refer to the *Student Learning Resources Policy* and *Teaching Resources Policy* or contact:

Learning Resources Unit
Curriculum Standards Branch
Alberta Education
5th Floor, Devonian Building, East Tower
11160 Jasper Avenue
Edmonton, AB
T5K 0L2
Telephone: 422-4872
Fax: 422-5129

AUTHORIZED RESOURCES

BASIC LEARNING RESOURCES

The following basic learning resources have been authorized by Alberta Education for use in the Information Processing curriculum. A curriculum correlation appears in the right-hand column.

Distributor Code	Resources	Levels/Module No.		
		1	2	3
LRDC	<p><i>Advanced Word Processing Applications: Job-Based Tasks.</i> Lloyd D. Brooks. Paradigm Publishing International, 1992. Text. LRDC PO#275455-01.</p> <p>This generic word-processing resource explains how to organize and produce a variety of business documents. Exercises are presented in a simple to complex format. An instructor's guide is available (LRDC PO#276049-01).</p>	103	205	307
			206	309
			209	310
			210	
			212	
LRDC	<p><i>Apple Works® 5.0: The Works (Apple Version).</i> Quality Computers, 1994.</p> <p>Appleworks is an integrated software package. Appleworks combines three popular types of programs - Word Processor, Database and Spreadsheet. Appleworks 5.0 requires an enhanced Apple IIe, 256 expansion memory and a 3.5" disk drive. This version supports more efficient recall and management of files, expanded use of macros and improved word processing, data base and spreadsheet functions.</p>			
LRDC	<p><i>Computers!.</i> (4th edition.) Timothy N. Trainor and Diane Krasnewich. Mitchell McGraw-Hill, 1992. Text. LRDC PO#285595-01.</p> <p>This textbook covers technological progress, computer information systems, using software, word-processing and desktop publishing, electronic spreadsheets, graphics, database management, hardware and communications and information systems.</p>	101		
		103		
		104		
		106		
		107		
LRDC	<p><i>Data Processing Applications.</i> Sheila Dvorchik and Lesley Wasylenki. Copp Clark Longman Ltd., 1988. Student Book. LRDC PO#275679-01.</p> <p>A collection of realistic, practical activities that promote the use of problem-solving and decision-making skills. It also includes data processing applications. A teacher's manual and software data disk is available.</p>		202	306
			206	307
			207	308
			208	310
			209	
			210	
			211	
			212	

Basic Learning Resources (Cont'd.)

Distributor Code	Resources	Levels/Module		
		1	2	3
LRDC	<p><i>Keyboarding: The Bare Essentials.</i> Sandra D. Ubelacker, Melvin R. Delaney and Donna J. Allan. Copp Clark Longman Ltd., 1992. LRDC PO#275661-01.</p> <p>This text uses an alpha-numeric approach to teach the letters and numbers of the keyboard simultaneously. Includes the standard formats of letters, envelopes, memos, displays and reports. A three-page section introduces the 10-key pad.</p>	101	203	
		102	204	
LRDC	<p><i>Keyboarding for Personal Computer Use.</i> M. Lily Kretchman. John Wiley & Sons, 1987. LRDC PO#107004-04.</p> <p>An Introductory level textbook for learning alpha-numeric, service keys and the number pad. Sufficient timed writings are available at a variety of suitable intensity levels. Sufficient practice material is available. Formatting for personal letter, an envelope, a personal business letter and essay/report (bibliography and title page) is included.</p>			
LRDC	<p><i>Mastering Keyboarding Skills.</i> (2nd edition.) Sandra D. Ubelacker, Rita M. Guest and Gerald McConaghy. Copp Clark Longman Ltd., 1989. Text. LRDC PO#275653-01.</p> <p>Keyboarding skills are present for alpha-numeric service and the 10-key pad. Formatting presentation includes displays, enumerations, letters, envelopes, forms and tables, reports (footnotes, bibliography entries) for the introductory and some intermediate levels. Instructions are suitable for both typewriter/computer platforms.</p>	102	203	
		103	204	
			209	
			210	
			211	
			212	
LRDC	<i>Microsoft Word for Windows™.</i> (Version 2.0.) Microsoft/Microsoft Canada Inc.			
LRDC	<i>Microsoft Works for Windows™.</i> (Version 2.0E.) Microsoft/Microsoft Canada Inc.			
LRDC	<p><i>Reaches: An Intensive Drill Package.</i> Shirley Elliott and Peggy Reddekopp. School Prints, 1983. LRDC PO#276338-01.</p> <p>This resource package of black-line masters includes keyboarding drills of various levels. Autobiographies enhance each area as well.</p>	101	203	303
		102	204	304
			209	305
			210	
			211	
LRDC	<p><i>World of Computers, The: Applications and Principles.</i> (2nd print edition.) Rob Kelley. John Wiley & Sons Canada Ltd., 1992. Student text. LRDC PO#275405-01.</p> <p>Provides a broad spectrum of up-to-date information, concepts and skills essential to the development of computer literacy and computer applications. It concentrates on four major areas of study: computer hardware systems; software applications; computer uses and their impact on society, and computer programming.</p>	101	201	
		103	215	
		104	216	
		105	217	
		106	218	
		107		
		108		

SUPPORT LEARNING RESOURCES

The following support learning resources are authorized by Alberta Education to assist in addressing some of the learner expectations of a module or components of modules.

Distributor Code	Print Resources	Levels/Module No.		
		1	2	3
LRDC	<p><i>Award Enterprises: An Information Processing Simulation.</i> Gerald Roussie and Allen Paul. Copp Clark Pitman Ltd./Copp Clark Longman Ltd., 1991. Text. LRDC PO#275645-01.</p> <p>This simulation outlines the amalgamation of two companies that have new hardware and software. A variety of forms on a word processor/data base/spreadsheet are used.</p>		212	310 311 312
LRDC	<p><i>Business Software Applications.</i> E.J. Coburn, et al. Paradigm Publishing International, 1990. Text. LRDC PO#275447-01.</p> <p>This entry-level textbook has hands-on exercises, and guided assignments provide learn-by-doing instructions. Several word-processing documents, spreadsheets and database files are pre prepared for assignment. (Software.)</p>	101 103 105 106	201 205 206 207 208 212	
ACC	<p><i>Career and Technology Studies: Key Concepts.</i> Edmonton, AB. ACCESS Network.</p> <p>Series of videos and utilization guides relevant to all CTS strands. Series consists of <i>Anatomy of a Plan, Creativity, Electronic Communication, The Ethics Jungle, Go Figure, Innovation, Making Ethical Decisions, Portfolios, Professionalism, Project Planning, Responsibility and Technical Writing.</i></p>	all	all	all
LRDC	<p><i>Computer Applications for Business: Step-by-Step Exercises and Applications.</i> Iris Blanc. Dictation Disc Co., 1990. Text. LRDC PO#283317-01.</p> <p>Introduces word processing, database and spreadsheet concepts through sequential practice material.</p>	103 105 106		
LRDC	<p><i>Computer Applications in Business.</i> Guy Drolet and Monica Taylor. Copp Clark Pitman Ltd., 1989. Text. LRDC PO#275760-01.</p> <p>Covers the major software tools - word processing, databases and spreadsheets. Features computer applications relating to starting a small business, the daily routine of the computer service bureau, applications that require the use of graphics software. Offers the opportunity to reinforce previously learned concepts.</p>	103 105 106	212	310
LRDC	<p><i>DDC Database.</i> Iris Blanc and Elinore Hildebrandt. Dictation Disc Co., 1990. LRDC PO#275215-01.</p> <p>Introduces database concepts through exercises and applications designed to develop skills necessary for database manipulation on any software or computer.</p>	105	207 211	

Support Learning Resources (Cont'd.)

Distributor Code	Print Resources	Levels/Module No.		
		1	2	3
LRDC	<i>DDC Spreadsheets: Spreadsheets Skill Building Exercises and Applications.</i> Iris Blanc and Cathy Vento. Dictation Disc Company, 1986. LRDC PO#276677-01. Provides 100 generic developmentally organized operations that incorporate accounting, marketing/ management/ economic and finance activities/ exercise that develop spreadsheet skills. Includes glossary of terms and standard grid planner.	106	208 211	309 311 312
LRDC	<i>Desktop Publishing: Design Basics and Applications.</i> George H.J. Porozny. Copp Clark Pitman Ltd., 1993. LRDC PO#273772-02. Provides general information that can be used with many DTP programs. As students progress through the text, they make a written record of the steps required to complete procedures relating to the program they are using. This record becomes a valuable reference source.		206	307
LRDC	<i>Flying Fingers: An Introductory Keyboarding Program Books.</i> (Book I/II, LRDC PO#276445-01, Book III/IV, LRDC PO#276437-01, Book V/VI, LRDC PO#276429-01.) Peggy Reddekopp and Shirley Elliott. School Prints. An introductory keyboarding course designed for elementary to junior high. Stresses technique rather than speed. This program provides for skill development through monitoring and positive reinforcement.	101 102	203 204	303 304 305
LRDC	<i>More Data Processing Applications.</i> Sheila Dvorchik and Lesley Wasylenki. Copp Clark Longman Ltd., 1992. Text. LRDC PO#276990-01. The second textbook in a series of simulations-based books for advanced computer applications. It includes a collection of software application development practice - - desktop publishing, graphics, Hypercard, telecommunication, scanning, etc. - that use problem-solving/ decision-making skills and research skills.		202 206 207 208 209 210 211 212	306 307 308 310
LRDC	<i>Object-oriented Programming in Microsoft C++.</i> (1st edition.) Waite Group Press/Copp Clark Longman Ltd.	108	215 216 217 218	315 316 317
LRDC	<i>Omega Desktop, Inc.: A Desktop Publishing Simulation.</i> Betty L. Boyce, Mary S. Auvil and Patricia D. Whitman. South-Western Publishing Co., 1992. Text. LRDC PO#275413-01. Hands-on computer applications for advanced applications in which students have already learned how to word process. Activities support a variety of general office activities.	104	206 212	307 310

Support Learning Resources (Cont'd.)

Distributor Code	Print Resources	Levels/Module No.		
		1	2	3
LRDC	<p><i>100+ Desktop Publishing Exercises.</i> Helen Youth. Prentice Hall, 1990. Exercise book. LRDC PO#276982-01</p> <p>A generic application workbook supplying exercises to practise layout using either desktop publishing package or advanced word-processing software. Strong emphasis on editing and layout presentation. Quality samples.</p>		206	307 310 311 312
LRDC	<p><i>Paradigm Timed Writings.</i> Jack Salem and Richard Featheringham. Paradigm Publishing Inc., 1992. LRDC PO#275968-01.</p> <p>Provides practice of keying various documents including proofread and handwritten copy in a timed environment.</p>	101 102	203 204	303 304 305
LRDC	<p><i>Pine Tree Resorts: An Office Simulation.</i> Mark Kowalchuk and Carol Lyons. Copp Clark Pitman Ltd., 1986. LRDC PO#275778-01.</p> <p>Handwritten sources offer realistic office situations that enable students to combine thinking skills with keyboarding practice. Includes letters, reports, telephone/ telecommunications, itineraries, records and administrative support functions.</p>	101 102	209 210 211 212	310
LRDC	<p><i>Producing Business Documents: Integrated Projects and In-Baskets.</i> William M. Mitchell, M. A. Mach and James E. LaBarre. Paradigm Publishing Inc., 1992. Student Practice Set. LRDC PO#276726-01.</p> <p>Provides materials that will help students perfect the skills previously acquired in keyboarding courses. The practice set is designed to enhance previously developed skills and to challenge students to achieve new levels in producing business-related documents. The practice set includes formatting and document preparation of text and graphics, including editing, proofing and revising. Students are encouraged to make use of the hardware and software technology available today.</p>		212	310 311 312
LRDC	<p><i>Programming Applications.</i> Bob Drake. Copp Clark Pitman Ltd., 1988. Text. LRDC PO#277005-01.</p> <p>A collection of application problems designed to provide students with sufficient practice to achieve programming proficiency. A wide variety of topics are sure to interest students. Programming examples include a "What Happens" section, a debugging section and an exercise section.</p>	108	215 216 217 218	
LRDC	<p><i>Software Solutions, Inc.: A Practice Set for the Electronic Office.</i> Rosemary T. Fruehling and Constance K. Weaver. Gregg Division, McGraw-Hill Book Co., 1989. LRDC PO#276180-01.</p> <p>A 15- to 20-hour simulation that provides practical experience in performing information processing job tasks. Also includes decision-making and human relations situations frequently encountered by information processing workers in their first office position.</p>		212	310 311 312

Support Learning Resources (Cont'd.)

Distributor Code	Print Resources	Levels/Module No.		
		1	2	3
LRDC	<p><i>Spreadsheet Applications: Job-Based Tasks.</i> Joseph C. Otto. Paradigm Publishing Inc., 1993. Text, Data Disk.</p> <p>This practice set consists of three units of spreadsheets projects: Unit 1 - managing business and personal information, Unit 2 - interpreting business and personal information, Unit 3 - presenting numeric information. An instructor's guide is provided separately giving outcomes to projects.</p>	106	208	
LRDC	<p><i>Step-by-Step Skill Building Exercises for the Word Processor.</i> (2nd edition.) Iris Blanc. Dictation Disc Co., 1989. LRDC PO#275223-01.</p> <p>Covers simple to complex word-processing activities that require a variety of word-processing functions and skills.</p>	103	205	306
LRDC	<p><i>Typing Power Drills.</i> (2nd Canadian edition.) McGraw-Hill Ryerson Ltd. LRDC PO#152710-04.</p>	102	203	303 304 305
LRDC	<p><i>Welcome to ... Networking: A Guide to LAN.</i> Joseph Levy. MIS Press, 1993. Text. LRDC PO#278475-01.</p> <p>Includes LAN systems, assessing network needs, cabling/topology issues, the operating system, protocols and standards, the best vendor, maintaining the LAN, security and linking applications. A section on electronic imaging is presented.</p>		201	302

Support Learning Resources (Cont'd.)

Distributor Code	CCI Training Manuals Computer and System Operations	Levels/Module No.		
		1	2	3
LRDC	<i>A Glance at DOS® Programs</i> , A. G. Coulthard, et al. Computer Consultants International, 1993. Training Manual 1045. LRDC PO#275140-01.	101	201	
LRDC	<i>How Networks Work</i> . F.J. Derfler, L. Freed. Copp Clark Longman Ltd., Emeryville, CA, 1993. This book offers original illustrations that graphically unravel the PC network to detail in full color how each component does its magic and how all the pieces fit together.		201 202 217	
LRDC	<i>How Software Works</i> . R. White. Cop Clark Longman Ltd., Emeryville, CA, 1993. How Software Works covers all major categories, including operating systems, database management, spreadsheets, Word processing, graphics, communications and windows.	101	201 216	
LRDC	<i>Introduction to IBM® PC and DOS</i> . (Release 5.X/6.X.) S. Wong, et al. Computer Consultants International, 1993. Training Manual 1032. LRDC PO#274697-01.	101	201	
LRDC	<i>Introduction to Local Area Networks</i> . I. Frazer. Computer Consultants International, 1990. Training Manual 1078. LRDC PO#275158-01.			302
LRDC	<i>Introduction to the Macintosh® System 6.0</i> . R. Sheriland. Computer Consultants International, 1991. Training Manual 3900. LRDC PO#274845-91.	101		
LRDC	<i>Introduction to Macintosh® System 7.0</i> . R. Sheriland. Computer Consultants International, 1991. Training Manual 3902. LRDC PO#274770-01.	101	201	
LRDC	<i>Looking Through Windows™</i> . S.F. Wong, W. Babkowski and G. Coulhard. Computer Consultants International. Training Manual 1160. LRDC PO#278325-01. Walks users step-by-step through functions/operations to use Windows + Microsoft Windows 3.1, Word 2.0 for Windows, Excel 4.0 for Windows and Power Point 3.0 for Windows.	101	201	
LRDC	<i>Microsoft® Excel® for Windows™</i> . (Version 5.0.) (Level I.) Computer Consultants International. Training Manual 2340. LRDC PO#283474-01.	108	208	

Support Learning Resources (Cont'd.)

Distributor Code	CCI Training Manuals Computer and System Operations	Levels/Module No.		
		1	2	3
LRDC	<i>Microsoft® Excel® for Windows™</i> . (Version 5.0.) (Level II.) Computer Consultants International. Training Manual 2341. LRDC PO#283432-01.	108	208	
LRDC	<i>Microsoft® Windows™</i> . (Release 3.X.) S.F. Wong and B. Ling. Computer Consultants International, 1993. Training Manual 1157. LRDC PO#275124-01.	101	201	
LRDC	<i>Networking for the Macintosh</i> . R. Sparks. Computer Consultants International, 1991. Training Manual 3910. LRDC PO#274762-01.			302
LRDC	<i>PC Troubleshooting</i> . (Release 3.0.) (Level I). P. Allum. Computer Consultants International, 1990. Training Manual 3000. LRDC PO#274944-01.		201	
LRDC	<i>PC Troubleshooting</i> . (Level II.) P. Allum. Computer Consultants International, 1991. Training Manual 3010. LRDC PO#274936-01.		201	
LRDC	<i>Understanding DOS® - Advanced</i> (Release 5.X/6.X.) S. Wong, et al. Computer Consultants International, 1993. Training Manual 1036. LRDC PO#275132-01.		201	
LRDC	<i>Understanding DOS® - Intermediate</i> . (Release 5.X/6.X.) S. Wong, et al. Computer Consultants International, 1993. Training Manual 1034. LRDC PO#274704-01.		201	

Support Learning Resources (Cont'd.)

Distributor Code	CCI Training Manuals Data Base Systems	Levels/Module No.		
		1	2	3
LRDC	<i>dBase IV®</i> . (Version 2.0.) (Level I.) Computer Consultants International. Training Manual 2095. LRDC PO#283507-01.	105	207	
LRDC	<i>FileMaker Pro® on the Macintosh™</i> . J.L. Chia. Computer Consultants International, 1992. Training Manual 3940. LRDC PO#274738-01.	105	207	
LRDC	<i>Introduction to dBase IV®</i> . (Release 1.5.) K. Lee. Computer Consultants International, 1993. Training Manual 2085. LRDC PO#274895-01.	105	207	
LRDC	<i>Introduction to dBase IV®</i> . (Release 1.5.) (Level II.) K. Lee. Computer Consultants International, 1993. Training Manual 2090. LRDC PO#274837-01.	105	207	
LRDC	<i>Introduction to FoxPro® 2.0™</i> . (Version 2.0.) G. Coulthard. Computer Consultants International, 1991. Training Manual 2280. LRDC PO#275463-01.	105	207	
LRDC	<i>Microsoft® Access® for Windows™</i> . (Version 1.X.) S.F. Wong. Computer Consultants International, 1993. Training Manual 2285. LRDC PO#274829-01.	105	207	
LRDC	<i>Microsoft® FoxPro® for Windows™</i> . (Version 2.5.) S.F. Wong. Computer Consultants International, 1993. Training Manual 2284. LRDC PO#275471-01.	105	207	
LRDC	<i>Using WordPerfect® 5.1 as a Database</i> . Lois Larson. Studio Word Processing Ltd., 1991. Student Training Manual. LRDC PO#278467-01. Contain basic exercises in a database. It is important to understand WordPerfect prior to doing these manuals.	105	206	307

Support Learning Resources (Cont'd.)

Distributor Code	CCI Training Manuals Desk Top Publishing / Graphic Systems	Levels/Module No.		
		1	2	3
LRDC	<i>Aldus® PageMaker® for the Macintosh™</i> . (Version 4.0.) R. Sheriland. Computer Consultants International, 1990. Training Manual 3925. LRDC PO#274754-01.		206	307
LRDC	<i>Aldus® PageMaker® for Windows™</i> . (Version 4.0.) L. Scrugham. Computer Consultants International, 1992. Training Manual 3240. LRDC PO#274887-01.		206	307
LRDC	<i>Aldus® PageMaker® for Windows™</i> (Version 4.0.) (Level II.) L. Scrugham. Computer Consultants International, 1992. Training Manual 3245. LRDC PO#274879-01.		206	307
LRDC	<i>Aldus® PageMaker® for Windows™</i> . (Version 4.0.) (Level III.) S. Gauer. Computer Consultants International, 1993. Training Manual 3250. LRDC PO#274861-01.		206	307
LRDC	<i>Aldus® Pagemaker® for Windows™</i> . (Version 5.0.) (Level I.) Computer Consultants International. Training Manual 3255. LRDC PO#283482-01.		206	307
LRDC	<i>Aldus® Pagemaker® for Windows™</i> . (Version 5.0.) (Level II.) Computer Consultants International. Training Manual 3256. LRDC PO#283490-01.		206	307
LRDC	<i>CorelDRAW®</i> . (Version 4.0.) (Level I.) D. McGarry and L. Scrugham. Computer Consultants International, 1994. Training Manual 3539. LRDC PO#274853-01.		206	307
LRDC	<i>Desktop Publishing: Page Layout & Design</i> . L. Scrugham. Computer Consultants International, 1991. Training Manual 3210. LRDC PO#274902-01.		206	307
LRDC	<i>Desktop Publishing With WordPerfect 5.1</i> . Studio Word Processing Ltd. Student Training Manual.		206	307
LRDC	<i>Introduction to Desktop Publishing</i> . L. Scrugham. Computer Consultants International, 1991. Training Manual 3200. LRDC PO#274910-01.		206	307
LRDC	<i>Quark Express® for the Macintosh™</i> . (Release 3.0.) D. McGarry and L. Scrugham. Computer Consultants International, 1991. Training Manual 3929. LRDC PO#274746-01.		206	307
LRDC	<i>WordPerfect® Desktop Publishing</i> . (Level III.) (Version 6.0.) W. Babkowski. Computer Consultants International, 1993. Training Manual 1874. LRDC PO#275017-01.	103	205	

Support Learning Resources (Cont'd.)

Distributor Code	CCI Training Manuals Desk Top Publishing / Graphic Systems	Levels/Module No.		
		1	2	3
LRDC	<i>WordPerfect® for Windows™ Desktop Publishing. (Level III.) (Version 5.2.)</i> W. Babkowski. Computer Consultants International, 1993. Training Manual 1984. LRDC PO#274986-01.	103	205	

Support Learning Resources (Cont'd.)

Distributor Code	CCI Training Manuals Integrated Packages	Levels/Module No.		
		1	2	3
LRDC	<i>Introduction to Microsoft® Works®</i> . (Version 3.0.) S.F. Wong and J. MacPherson. Computer Consultants International, 1993. Training Manual 2187. LRDC PO#274811-01.	103	205	
		105	206	
		106	207	
			208	
LRDC	<i>Microsoft® Works® for Windows™</i> . (Version 2.0.) S.F. Wong. Computer Consultants International. Training Manual 2190. LRDC PO#274803-01.	103	205	
		105	206	
		106	207	
			208	

Support Learning Resources (Cont'd.)

Distributor Code	CCI Training Manuals Spreadsheet Systems	Levels/Module No.		
		1	2	3
LRDC	<i>Introduction to Quattro® Pro.</i> (Version 4.0.) S.F. Wong. Computer Consultants International, 1992. Training Manual 2250. LRDC PO#274796-01.		206	307
LRDC	<i>Lotus® 1-2-3®.</i> (All DOS releases.) S.F. Wong. Computer Consultants International, 1993. Training Manual 1226. LRDC PO#275116-01.	106	208	
LRDC	<i>Lotus® 1-2-3®.</i> (All DOS Releases.) (Level II.) J. Horne, et al. Computer Consultants International, 1992. Training Manual 1305. LRDC PO#275108-01.	106	208	
LRDC	<i>Lotus® 1-2-3®.</i> (All DOS releases.) (Level III.) M. Dennis, et al. Computer Consultants International, 1993. Training Manual 1310. LRDC PO#275091-01.	106	208	
LRDC	<i>Lotus® 1-2-3® for Windows™.</i> (Release 4.0.) S.F. Wong. Computer Consultants International, 1993. Training Manual 1327. LRDC PO#275083-01.	106	208	
LRDC	<i>Lotus® 1-2-3® for Windows™.</i> (Release 4.0.) (Level II.) S.F. Wong. Computer Consultants International, 1994. Training Manual 1328. LRDC PO#275075-01.	106	208	
LRDC	<i>Microsoft® Excel® for the Macintosh™.</i> (Release 3.0.) L. Robertson. Computer Consultants International, 1992. Training Manual 3970. LRDC PO#274720-01.	106	208	
LRDC	<i>Microsoft® Excel® for Windows™.</i> (Release 4.0.) (Level I.) S.F. Wong and G. Coulthard. Computer Consultants International, 1993. Training Manual 2336. LRDC PO#274978-01.	106	208	
LRDC	<i>Microsoft® Excel® for Windows™.</i> (Release 4.0.) (Level II.) S.F. Wong and A. Frayling. Computer Consultants International, 1993. Training Manual 2337. LRDC PO#274960-01.	106	208	
LRDC	<i>Quattro® Pro for Windows™.</i> (Version 5.0.) (Level I.) S.F. Wong. Computer Consultants International, 1994. Training Manual 2260. LRDC PO#274994-01.	106	208	
LRDC	<i>Quattro® Pro for Windows™.</i> (Version 5.X.) (Level II.) S.F. Wong. Computer Courseware International, 1994. Training Manual 2262. This courseware is a continuation of the Quattro Pro for Windows - Level I.	106	208	

Support Learning Resources (Cont'd.)

Distributor Code	CCI Training Manuals Word-processing Systems	Levels/Module No.		
		1	2	3
LRDC	<i>Intermediate Word Processing Applications: Job-based Tasks. (DOS 3.5" Version 1.0.)</i> Paradigm Publishing International.	103	205 206 209 210 212	307 309 310
LRDC	<i>Intermediate Word Processing Applications: Job-based Tasks. (DOS 5.25" Version 1.0.)</i> Paradigm Publishing International.	103	205 206 209 210 212	307 309 310
LRDC	<i>Introduction to WordPerfect® 5.1.</i> Lois Larson. Studio Word Processing Ltd., 1991. Student Training Manual. LRDC PO#278441-01. Teacher/student manual contains software manipulation directions as well as good exercises to help strengthen the learning. Note: The actual formatting procedure for specific tables, reports and letters are not covered and would also have to be taught separately, but the exercises contain examples of all three.	101 102 103	205	309
LRDC	<i>Introduction to WordPerfect® for Windows™.</i> (Version 5.2.) (DOS Keyboard edition.) Lois Larson. Studio Word Processing Ltd., 1993. Student Training Manual. LRDC PO#278459-01. Manual is ideal for those wishing to switch from a DOS version of WordPerfect to a Windows version. Screen prints help to identify the steps in executing the function. Walk-through exercises are provided to facilitate a hands-on experience for student learning.	103	205	309 311 312
LRDC	<i>Microsoft® Word® for Windows™.</i> (Level I.) (Version 6.0.) W. Babkowski. Computer Consultants International, 1991. Training Manual 1760. LRDC PO#275067-01.	103	205	
LRDC	<i>Microsoft® Word® for Windows™.</i> (Level II.) (Version 6.0.) W. Babkowski. Computer Consultants International, 1994. Training Manual 1762. LRDC PO#275059-01.	103	205	
LRDC	<i>Microsoft® Word® for Windows™</i> (Level III.) (Version 6.0.) W. Babkowski. Computer Courseware International, 1994. Training Manual 1764. The objectives of this courseware are to introduce experienced users to the desktop publishing features of Word for Windows, Version 6.			

Support Learning Resources (Cont'd.)

Distributor Code	CCI Training Manuals Word-processing Systems	Levels/Module No.		
		1	2	3
LRDC	<i>Microsoft® Word® on the Macintosh™</i> . (Version 5.X.) J.L. Chia. Computer Consultants International, 1990. Training Manual 4010. LRDC PO#274712-01.	103	205	
LRDC	<i>Using WordPerfect® 5.1 as a Database</i> . Lois Larson. Studio Word Processing Ltd., 1991. Student Training Manual. LRDC PO#278467-01. Contain basic exercises in a database. It is important to understand WordPerfect prior to doing these manuals.	105	206	307
LRDC	<i>WordPerfect® for Windows™</i> . (Level I.) (Version 5.2.) W. Babkowski and L. Scrugham. Computer Consultants International, 1993. Training Manual 1982. LRDC PO#275033-01. Provides new users of WordPerfect for Windows with a basic understanding of the program. It contains procedures for operating WordPerfect features and includes.	103	205	
LRDC	<i>WordPerfect® for Windows™</i> . (Level II.) (Version 5.2.) W. Babkowski and L. Scrugham. Computer Consultants International, 1993. Training Manual 1983. LRDC PO#275009-01. Part of a series that presents WordPerfect concepts in a step-by-step, read, do and exercise fashion. Areas covered: button-base formatting with styles, headers and footers, footnotes, endnotes, long documents, redline and strikeout, redoes, borders, fills, graphics, merge and macros.	103	205	
LRDC	<i>WordPerfect®</i> . (Level I.) (Version 6.0.) W. Babkowski and L. Scrugham. Computer Consultants International, 1993. Training Manual 1870. LRDC PO#275041-01. Provides new users of WordPerfect with a basic understanding of the program. It contains procedures for operating WordPerfect features and includes exercises.	103	205	
LRDC	<i>WordPerfect®</i> . (Level II.) (Version 6.0.) (DOS version.) W. Babkowski. Computer Consultants International, 1993. Training Manual 1872. LRDC PO#275025-01. Part of a series that presents WordPerfect concepts in a step-by-step, read, do and exercise fashion. Areas covered: button-base formatting with styles, headers and footers, footnotes, endnotes, long documents, redline and strikeout, redoes, borders, fills, graphics, merge and macros.	103	205	

Support Learning Resources (Cont'd.)

Distributor Code	CCI Training Manuals Word-processing Systems	Levels/Module No.		
		1	2	3
LRDC	<p><i>WordPerfect® for Windows™</i>. (Level I.) (Version 6.0.) W. Babkowski. Computer Consultants International, 1994. Training Manual 1986. LRDC PO#274952-01.</p> <p>Provides new users of WordPerfect for Windows with a basic understanding of the program. It contains procedures for operating WordPerfect features and includes exercises.</p>	103	205	
LRDC	<p><i>WordPerfect® for Windows™</i>. (Level II.) (Version 6.0.) W. Babkowski. Computer Consultants International, 1993. Training Manual 1987. LRDC PO#274928-01.</p> <p>Part of a series that presents WordPerfect concepts in a step-by-step, read, do and exercise fashion. Areas covered: button-base formatting with styles, headers and footers, footnotes, endnotes, long documents, redline and strikeout, redoes, borders, fills, graphics, merge and macros.</p>	103	205	
LRDC	<p><i>WordPerfect® for Windows™</i>. (Level III.) (Version 6.0.) W. Babkowski. Computer Consultants International, 1994. Training Manual 1988.</p> <p>The objectives of this courseware are to introduce experienced users to the desktop features of Word Perfect for Windows 6.0.</p>		205	306

Support Learning Resources (Cont'd.)

Distributor Code	Software Packages	Levels/Module No.		
		1	2	3
LRDC	<i>Hypercard</i> . (MacIntosh Version 2.2.) Apple Computers Inc.	107		
LRDC	<i>Microsoft® Project</i> (Windows™ Version 4.0) Microsoft Project version 4.0 helps create project plans,manage resources, communicate plans and progress to others and manage changes as necessary. It produces a variety of reports (e.g. GANTT charts) and screening options. This version is much easier for beginning users, providing on-line help and cue cards.			
LRDC	<i>SuperPaint</i> . (MacIntosh Version 3.50.) Aldus Corporation/Adobe Systems Inc.	104	206	307
SCI	<i>Ultrakey</i> . Scholastic Canada Inc., 1991. Manual/Software. Ultrakey is a computer-based keyboarding instruction program that uses life-like animation to teach users how to type. Every keyboarding skill is demonstrated. When additional help is needed the program immediately repeats demonstrations. Clear and concise progress reports are generated along with suggestions for improvement and individual reports.	102	203	303 304 305
LRDC	<i>WordPerfect</i> (DOS Version 6.0.) WordPerfect Corporation.	102 103	203 204 205 206 207 208 209 210 211 212	303 304 305 306 307 309 310 311 312
LRDC	<i>WordPerfect</i> . (MacIntosh Version 3.1.) Novell, Inc./WordPerfect Corporation.	102 103	203 204 205 206 207 208 209 210 211 212	303 304 305 306 307 309 310 311 312

Support Learning Resources (Cont'd.)

Distributor Code	Software Packages	Levels/Module No.		
		1	2	3
LRDC	<i>WordPerfect</i> . (MacIntosh Version 6.1.) Novell, Inc./ WordPerfect Corporation.	102	203	303
		103	204	304
			205	305
			206	306
			207	307
			208	309
			209	310
			210	311
			211	312
			212	

TEACHING RESOURCES

The following teaching resources are authorized by Alberta Education to assist teachers in the instructional process.

Distributor Code	Resources	Levels/Module No.		
		1	2	3
LRDC	<i>Advanced Word Processing Applications: Job-Based Tasks.</i> Lloyd D. Brooks. Paradigm Publishing International, 1992. Instructor's Guide. LRDC PO#276049-01. See Support Learning Resources for annotation and correlation.	103	205	307
			206	309
			209	310
			210	
			212	
LRDC	<i>Award Enterprises: An Information Processing Simulation.</i> Gerald Roussie and Paul Allen. Copp Clark Pitman Ltd., 1991. Instructor's Manual. LRDC PO#276114-01. See Support Learning Resources for annotation and correlation.		212	310
				311
				312
LRDC	<i>Business Software Applications.</i> E.J. Coburn, et al. Paradigm Publishing International, 1990. Instructor's Manual. LRDC PO#278491-01. See Support Learning Resources for annotation and correlation.	101	201	
		103	205	
		105	206	
		106	207	
			208	
LRDC	<i>Computer Applications in Business.</i> Guy Drolet and Monica Taylor. Copp Clark Pitman Ltd., 1989. Teacher's Edition. LRDC PO#276130-01. See Support Learning Resources for annotation and correlation.	103	212	310
		105		
		106		
LRDC	<i>Data Processing Applications.</i> Sheila Dvorchik and Lesley Wasylenki. Copp Clark Pitman Ltd., 1989. Teacher's Manual. LRDC PO#276148-01. See Basic Learning Resources for annotation and correlation.		202	306
			206	307
			207	308
			208	310
			209	
			210	
LRDC	<i>Flying Fingers: An Introductory Keyboarding Program.</i> Peggy Reddekopp and Shirley Elliott. School Prints. Teacher's Manual. LRDC PO#276453-01. Provides sample plans, patterned drills and activities that teachers can use in the Computer Operations module. Geared to elementary - junior high classes and not appropriate in high school aged students.	101	203	
		102		

Teaching Resources (Cont'd.)

Distributor Code	Resources	Levels/Module No.		
		1	2	3
LRDC	<i>Introduction to WordPerfect 5.1.</i> Lois Larson. Studio Word Processing Ltd., 1991. Teacher Training Manual. Training manual is for teaching WordPerfect 5.1 to adults or high schools students. It covers concepts that provide information and assignments for the student. The manual for Windows has exercises, but format is somewhat different than the 5.1 manual.	101 102 103	205	309
LRDC	<i>Mastering Keyboarding Skills 1.</i> (2nd edition.) Sandra D. Ubelacker and Rita M. Guest. Copp Clark Pitman Ltd., 1990. Teacher's Resource Book. LRDC PO#276122-01. See Basic Learning Resources for annotation and correlation.	10 102 103	203 204 209 210 211 212	303 304 305
LRDC	<i>More Data Processing Applications.</i> Sheila Dvorchik and Lesley Wasylenki. Copp Clark Pitman Ltd., 1992. Teacher's Manual. LRDC PO#276974-01. See Support Learning Resources for annotation and correlation.		202 206 207 208 209 210 211 212	306 307 308 310
LRDC	<i>Omega Desktop Inc.: A Desktop Publishing Simulation.</i> Betty L. Boyce, Mary S. Auvil and Patricia D. Whitman. South-Western Publishing Co., 1991. Manual. LRDC PO#276304-01. See Support Learning Resources for annotation and correlation.	104	206 212	307 310
LRDC	<i>Producing Business Documents: Integrated Projects and In-Baskets.</i> William M. Mitchell, K. A. Mach and James E. LaBarre. Paradigm Publishing International, 1992. Instructor's Guide. LRDC PO#276734-01. See Support Learning Resources for annotation and correlation.		212	310 311 312
LRDC	<i>Programming Applications.</i> Bob Drake. Copp Clarke. Pitman Ltd., 1989. Teacher's Manual. LRDC PO#276996-01.			

Teaching Resources (Cont'd.)

Distributor Code	Resources	Levels/Module No.		
		1	2	3
LRDC	<i>Software Solutions, Inc.: A Practice Set for the Electronic Office.</i> Rosemary T. Fruehling and Constance K. Weaver. Gregg Division, McGraw-Hill Book Co., 1989. Instructor's Manual and Key. LRDC PO#276023-01.		212	310
	See Support Learning Resources for annotation and correlation.			311
				312
LRDC	<i>Spreadsheet Applications: Job-Based Tasks.</i> Joseph C. Otto. Paradigm Publishing Inc. Instructor's Guide.	106	208	
	See Support Learning Resources for annotation and correlation.			
LRDC	<i>Using WordPerfect 5.1 as a Database.</i> Lois Larson. Studio Word Processing Ltd., 1992. Teacher Training Manual. LRDC PO#278540-01.			
	See Support Learning Resources for annotation and correlation.			
LRDC	<i>World of Computers, The: Applications and Principles.</i> (2nd print edition.) Rob Kelley. John Wiley & Sons Canada Ltd., 1992. Teacher's Guide. LRDC PO#276247-01.	101	201	
		103	215	
		104	216	
		105	217	
	See Basic Learning Resources for annotation and correlation.	106	218	
		107		
		108		

INFORMATION PROCESSING RESOURCES*

[illegible]

INFORMATION PROCESSING RESOURCES*

[illegible]

INFORMATION PROCESSING RESOURCES*

[illegible]

INFORMATION PROCESSING RESOURCES*

[illegible]

*A variety of software packages have been approved. See LADC Buyer's Guide "Software Section" or call CTS Unit.

INFORMATION PROCESSING RESOURCES

[illegible]

INFORMATION PROCESSING RESOURCES*

[illegible]

*A variety of software packages have been approved. See LADC Buyer's Guide "Software Section" or call CTS Unit.

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INFORMATION PROCESSING RESOURCES*

[illegible]

*A variety of packages have been approved. See LADC Buyer's Guide "Software Section" or call CTS Unit.

INFORMATION PROCESSING RESOURCES¹

[illegible]

ADDITIONAL SOURCES

Available to Information Processing teachers, both locally and provincially, are many sources of information that can be used to enhance Career and Technology Studies. These sources are available through the community, government agencies, resource centres and organizations. Some of these sources, e.g., government departments, undergo frequent name and/or telephone number changes. Please consult your telephone directory or an appropriate government directory.

The following is a partial list of sources in the community to consider:

TEACHER-LIBRARIANS

Planned and purposeful use of library resources helps students grow in their ability to gather, process and share information. Research activities require access to an adequate quantity and variety of appropriate, up-to-date print and non-print resources from the school library, other libraries, the community and additional sources. Some techniques to consider are:

- planning together
- establishing specific objectives
- integrating research skills into planning.

Cooperation between the teacher-librarian and the subject area teacher in the development of effectively planned resource-based research activities ensures that students are taught the research skills as well as the subject content.

Also see *Focus on Research: A Guide to Developing Student's Research Skills* referenced in the Alberta Education Sources section.

ALBERTA EDUCATION SOURCES

The following monographs are available for purchase from:

Learning Resources Distributing Centre
12360 - 142 Street
Edmonton, AB
T5L 4X9
Telephone: 427-2767
Fax: 422-9750

Please consult the "Support Documents" section or the "Legal, Service and Information Publications" section in the *Buyers Guide* for ordering information and costs.

Developmental Framework Documents

- *The Emerging Student: Relationships Among the Cognitive, Social and Physical Domains of Development*, 1991

This document looks at the whole child, or student, as a productive learner, integrating all the domains of development: cognitive, social and physical. It emphasizes the need for providing balanced curriculum and instruction.

- *Students' Interactions Developmental Framework: The Social Sphere*, 1988

This document focuses on the student as a social being. It looks at the student's affective or emotional growth and examines moral development. These three domains make up the social sphere.

- *Students' Physical Growth: Developmental Framework Physical Dimension*, 1988

This document examines children's normal physical growth in three areas: perceptual, structural and motor development. In none of these areas is the child's growth in a single continuous curve throughout the first two decades of life. Physical growth is characterized by periods of rapid growth and periods of slower growth. Consequently, differences and changes in growth patterns may affect the timing of certain learning processes.

- *Students' Thinking: Developmental Framework Cognitive Domain*, 1987

This document explores children's cognitive development from infancy to adolescence. The Piagetian stages of pre-operational, concrete operational and formal operational thinking are

explained. Suggestions for improving the learning process are also presented.

Others

- *Focus on Research: A Guide to Developing Students' Research Skills*, 1990

This document outlines a resource-based research model that helps students manage information efficiently and effectively, and in this process, to gain skills that are transferable to all school and work situations. This model provides a developmental approach to teaching students how to do research.

- *Teaching Thinking: Enhancing Learning*, 1990

Principles and guidelines for cultivating thinking, ECS to Grade 12, have been developed in this resource. It offers a definition of thinking, describes nine basic principles on which the suggested practices are based, and discusses possible procedures for implementation in schools and classrooms.

OTHER GOVERNMENT SOURCES

ACCESS Network

ACCESS Network offers a variety of resource and services to teachers. For a nominal dubbing and tape fee, teachers may have ACCESS Network audio and video library tapes copied.

ACCESS Network publishes a listing of audio and video cassettes as well as a comprehensive programming schedule.

Of particular interest are the Career and Technology Studies videos that are available with utilization guides. The guides outline key points in each video and suggest questions for discussion, classroom projects and other activities. Video topics are listed in the Support Learning Resources Section of this Guide. The videos listed and accompanying support material can be obtained from:

ACCESS Network

3720 - 76 Avenue

Edmonton, AB

T5B 2N6

Telephone: 440-7777 (in Edmonton)

1-800-352-8293

(outside Edmonton)

National Film Board of Canada (NFB)

The NFB has numerous films and videotapes that may be suitable for Information Processing. For a listing of NFB films and videotapes indexed by title, subject and director, or for rental or purchase of NFB films, call 1-800-267-7710 (toll-free). Educational Marketing Officers in Calgary and Edmonton are available, province wide, for workshops, conferences, professional development days and similar activities. For northern Alberta and the Northwest Territories, the Educational Marketing Officer can be reached at 495-3012 (fax, 495-6412). For southern Alberta, contact the Educational Marketing Officer at 292-5411 (fax, 292-5458).

ACCESS Network and some school boards have acquired duplication rights to some NFB videotapes. Please consult the relevant catalogues in your school or school district.

The Calgary Public Library has a selection of NFB films and videotapes that can be borrowed free of charge with a Calgary Public Library borrower's card. For further information, contact:

Calgary Public Library

Films and Recordings Department

616 Macleod Trail SE

Calgary, AB

T2G 2M2

Telephone: 260-2781

Resource Centres

Urban Resource Centres

Calgary Board of Education

Supervisor, Education Media

3610 - 9 Street SE

Calgary, AB

Telephone: 294-8540

Fax: 287-9739

Calgary Separate School Board
Supervisor, Instructional Materials
1000 - 5 Avenue SW
Calgary, AB
T2P 4T9
Telephone: 246-6663
Fax: 249-3054

County of Strathcona
Director, Learning Resource Service
2001 Sherwood Drive
Sherwood Park, AB
T8A 3W7

Edmonton Public School Board
Learning Resource Consultant
Centre for Education
One Kingsway Avenue
Edmonton, AB
T5H 4G9
Telephone: 429-8320
Fax: 429-8313

Lakeland School District No. 5460
Area Superintendent
Postal Bag 1001
6005 - 50 Avenue
Bonnyville, AB
T9N 2L4
Telephone: 826-3145
Fax: 826-4600

Medicine Hat School District No. 75
IMC Manager
601-1 Avenue SW
Medicine Hat, AB
T1A 4Y7
Telephone: 526-1323
Fax: 529-5339

Red Deer Public School Board
Coordinator of Instruction
4747 - 53 Street
Red Deer, AB
T4N 2E6
Telephone: 343-1405
Fax: 347-8190

St. Anthony's Teacher Centre
Supervisor, Curricular Resources
10425 - 84 Avenue
Edmonton, AB
T6E 2H3
Telephone: 439-7356
Fax: 433-0181

Regional Resource Centres

Zone 1

Zone 1 Regional Resource Centre
Film Supervisor
10020 - 101 Street
P.O. Box 6536
Peace River, AB
T8S 1S3
Telephone: 624-3187
Fax: 624-5941

Zones II and III

Central Alberta Media Services (CAMS)
Film Supervisor
182 Sioux Road
Sherwood Park, AB
T8A 3K5
Telephone: 464-5540
Fax: 467-5469

Zone IV

Alberta Central Regional Education Services
(ACRES)
Operations Manager
County of Lacombe
Parkland Regional Library Building
56 Avenue and 53 Street Corner
Box 3220
Lacombe, AB
T0C 1S0
Telephone: 782-5720
Fax: 782-5831

Zone V

South Central Alberta Resource Centre (SCARC)
c/o County of Wheatland
435 B Hwy #1
Strathmore, AB
T1P 1J4
Telephone: 934-5028
Fax: 934-4889

Zone VI

Southern Alberta Learning Resource Centre
(SALRC)
Film Supervisor
Provincial Government Administration Building
120, 909 Third Avenue N
Box 845
Lethbridge, AB
T1J 3Z8
Telephone: 320-7807
Fax: 320-7817.

DISTRIBUTOR DIRECTORY

The entries in the distributor directory are arranged alphabetically by code.

Code	Distributor/Address	Telephone/Fax
ACC	ACCESS Network 3720 - 76 Avenue Edmonton, AB T6B 2N9	(403) 440-7777 Fax: 440-8899 1-800-352-8293
LRDC	Learning Resources Distributing Centre 12360 - 142 Street Edmonton, AB T5L 4X9	(403) 427-2767 Fax: 422-9750

CAREER & TECHNOLOGY STUDIES

INFORMATION PROCESSING

SAMPLE STUDENT LEARNING GUIDES

INTERIM 1994

Keyboarding I (INF102)

J.1

Word Processing I (INF103)

J. 9

Alberta

EDUCATION

CURRICULUM STANDARDS BRANCH

MAY 1994

INFORMATION PROCESSING

KEYBOARDING I (INF102)



TAKE THIS MODULE?

- ☒ Keyboarding skills provide you with the licence and ability to travel the "high-tech information highway" with speed and accuracy!
- ☒ Use your keyboarding skills to make written assignments (in school, university, college or on the job) easier to do, and to earn higher marks for work that is neatly and accurately prepared and printed.
- ☒ The ability to touch keyboard quickly and accurately will enhance your daily living skills and may open doors to many different career opportunities for you.
- ☒ Increase your efficiency in using the workstation equipment and resources.
- ☒ Improve your ability in basic competencies.

DO YOU NEED TO KNOW BEFORE YOU START?

This module requires that you can demonstrate the exit-level competencies defined in the following module from the Information Processing strand:

- INF101 Computer Operations



WILL YOU KNOW AND BE ABLE TO DO WHEN YOU FINISH?

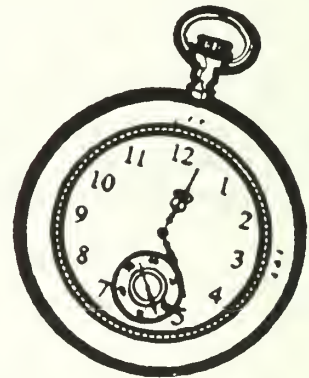
When you complete this module, you will be able to:

- ☒ enter alphabetic text and basic punctuation (.,:;?) at a minimum of 20 words per minute
- ☒ enter numbers on the numeric keypad at a minimum of 80 keystrokes per minute
- ☒ do the above using the appropriate fingering, posture and eye focus
- ☒ manage your workstation in an acceptable manner
- ☒ manage your learning resources effectively and efficiently.

SHOULD YOUR WORK BE DONE?

Use the timelines shown below to help you schedule your time. Prepare a workplan outlining when you will complete the tasks listed below. Submit this workplan to your instructor for approval. Remember, you should use your time and resources as efficiently as possible so that you can complete the module and move onto other opportunities to develop your skills and abilities. You may find that you need less time or more time than is indicated. If you need to adjust your workplan, be sure to consult your teacher.

- TASK 1: 15 hours (alphabet and build speed & accuracy)
- TASK 2: 5 hours (keypad numbers)
- TASK 3: 5 hours (punctuation (.,:;?))



HOW

WILL YOUR MARK FOR THIS MODULE BE DETERMINED?

	PERCENTAGE
To be successful in this module you will need to complete ALL the tasks defined below, meeting or exceeding the standards set for each task.	
<input checked="" type="checkbox"/> TASKS 1 & 3: TEST -- enter alphabetic text and basic punctuation keys (.,:;?) at a minimum of 20 words per minute in three timed attempts from straight-copy material with a maximum of 1 uncorrected error.	20-30
<input checked="" type="checkbox"/> TASK 2: TEST -- enter numbers on the numeric keypad at a minimum of 80 keystrokes per minute in three timed attempts from straight-copy material of 1 to 3 digit numbers, with a maximum of 1 uncorrected error.	5-10
<input checked="" type="checkbox"/> Consistently apply appropriate fingering, posture and eye focus. Instructor will observe and complete a check list (yes/no).	30-40
<input checked="" type="checkbox"/> Manage your workstation in an acceptable manner.	15-20
<input checked="" type="checkbox"/> Demonstrate improvement as you manage your learning resources effectively and efficiently.	<i>basic competency checklist</i>



WHICH

RESOURCES MAY YOU USE?



- ☒ Text: Ubelacker, Guest and McConaghy, *Mastering Keyboarding Skills 1*, 2nd Edition. Toronto: Copp Clark Pitman Ltd., 1989.
- ☒ Software: Type! Broderbund Software, Inc. 1989.
- ☒ Drill book: Lloyd, Winger, *Typing Power Drills*. McGraw-Hill Ryerson Limited, Toronto 1985.

BACKGROUND

WORKSTATIONS

With the assistance of your instructor, become familiar with all aspects of your workstation so that you will be comfortable starting up, working on and closing down programs and equipment at the end of each learning session.

Some things you will need to know:

- are you using a networked or stand-alone computer system?
- how do you turn on your equipment?
- how do you log in to the system?
- what programs will you be using?
- how do you load, use, exit or quit the programs you will be using?

Once you are familiar with and comfortable with the "mechanics" of your workstation, you will be ready to roll.

RESPONSIBILITY:

Remember, it is your responsibility to keep your station tidy, books in place and equipment properly turned off at the end of your session. It is also your responsibility to accurately complete all assignments within the time frame.

SOFTWARE INFORMATION/INSTRUCTIONS

Attached to this student guide is a learning package with instructions for using the selected software tutorial package (TYPE! by Broderbund) to learn the alphabetic keyboard (A through Z) and to apply correct keyboarding techniques and skills in order to achieve 20 words per minute.

Also included are instructions for using the specified word-processing software package (WordPerfect 5.1 for DOS), to learn, review and reinforce the alphabetic keyboard (A through Z); and basic punctuation (.,,:?); and numbers using the keypad.

TASK 1: USE TYPE! TO LEARN THE ALPHABETIC KEYBOARD (A through Z)

GOAL -- ability to accurately key in alphabetic letters (A-Z) at a minimum of 20 words per minute.

Read the material in the TYPE! information sheets included in this package. (Information Sheet No. 1.) These sheets will help you get started using the TYPE! program. If you have any questions, discuss them with your instructor before starting the program. Complete the drills and exercises in the TYPE! on-line tutorial.

Continue to work on the TYPE! Build Speed and Accuracy and Special Exercises until you have achieved your goals of mastery of the alphabet keys at 20 wpm.

TASK 2: USE WORDPERFECT 5.1 FOR DOS TO LEARN NUMBERS FROM THE KEYPAD

GOAL -- ability to accurately key in numbers 1-9 at a minimum of 80 keystrokes per minute.

(Note: The TYPE! program teaches numbers from the top row of the keyboard, and teaches them in conjunction with punctuation and alphabetic letters, so you will switch to WordPerfect to drill on keypad numbers.)

Read the material in the WORDPERFECT information sheets included in this package. These sheets give an overview of the WordPerfect function keys you will be using for this module. If you have any questions, discuss them with your instructor before starting the program.

EXERCISES Text: *Mastering Keyboarding Skills 1* (2nd Edition), pages 332 - 333

Read and follow the instructions in the textbook. Repeat the exercises until you have achieved a rate of 80 keystrokes per minute.

Additional Practice exercises:

Text: *Typing Power Drills*, page 29, drill #57; page 33, drill #62, page 34, drill #64.

(Additional practice may be found in business calculation texts.)

TASK 3: PUNCTUATION (.,:;?) Using WORDPERFECT for DOS 5.1

EXERCISES Text: *Mastering Keyboarding Skills 1* (2nd Edition)

Semicolon	Lesson 1, page 6
Comma	Lesson 5, page 14
Period	Lesson 6, page 16
Colon	Lesson 18, page 42
Question Mark	Lesson 18, page 42

Text: *Typing Power Drills*

Semicolon	drill 78, page 46
Colon	drill 79, page 46
Question Mark	drill 84, page 47

INFORMATION SHEET #1

USING TYPE!

Start up your computer and log into your system.

STOP!

You will require a FORMATTED DATA DISK on which to store your results. If you do not already have a formatted disk, prepare one now.

Insert your formatted data disk in the appropriate drive, then select the TYPE! program from your main menu.

- Press ENTER to go to the TYPE! Main Menu

- With the cursor located by the first item in the main menu, Introduction to the Keyboard, press ENTER again. Take the time to look over the different parts of the screen, and notice that your instructions appear at the bottom of the screen. Work through Introduction to the Keyboard; this should not take longer than 10 minutes. When you are finished the introduction to the keyboard, you will be returned to the TYPE! main menu.

NB: If you forget which fingers belong to which keys, refer to the keyboard/fingering chart included in this package.

NB: Be sure that your CAPS LOCK is OFF! If you get arrows under the letters as you type them it may be because you have your caps lock on. These arrows also indicate keystroke errors. You cannot correct as you type, but if you really mess up, you can press ESC to stop the exercise.

- With the TYPE! Main Menu showing on your screen, move the cursor down next to the words Keyboard Basics, and press ENTER to select the exercises for the letters of the alphabet.

- Take a minute to become familiar with the information on your screen.

The top left portion of the screen shows a "keyboard". As you type, the letters that you type will appear on this keyboard. The program will track your progress, and as you achieve your goals it will automatically introduce additional letters, until you have covered all of the alphabet keys to the level of 20 words per minute.

The top right portion of the screen will keep track of your speed and accuracy GOALS as well as your ACTUAL speed and accuracy. It will also let you know which letters you type incorrectly -- and keeps track of your "weak" letters.

At the bottom of the screen you will see the words CURRENT LESSON. Also displayed are all the letters of the alphabet.

START YOUR DRILLS with the cursor under the letter A, by pressing ENTER. Continue to work on Keyboard Basics each day until you have achieved a speed of 20 words per minute for all of the letters of the alphabet.

There will be several sets of exercises. As you complete each practice line, the results display in the top right corner of your screen. When you have completed a set of exercises, check your overall results.

You may get a Recommended Exercise: message. If this message appears, check the menu at the bottom of your screen. You can choose to continue with your current lesson by pressing ENTER, or go to the recommended exercise by moving the cursor to the words "recommended exercise" and pressing ENTER.

If you want to see a breakdown of your results at the end of a training session, select Display Graphs from the menu at the bottom of the screen. Read each graph screen carefully, they are self-explanatory!

There are graphs for results by letter group; results for each finger; alphabet; numbers and symbols; and an error analysis. You can move from graph to graph by pressing ENTER. Once you have worked your way through the graphs, press ESC (escape on your keyboard) to exit the graphs windows.

AT ANY TIME YOU WANT TO GO BACK TO THE TYPE! MAIN MENU, PRESS ESC.

To QUIT the TYPE! program, press ESC to go the TYPE! Main Menu, then press Q (for Quit) and Y (for yes). This will return you to your station main menu.

ASSESSMENT CHART

INF102: KEYBOARDING I

KEYBOARDING RATE - Alphabetic:

20 wpm	20 marks
21-22 wpm	22 marks
23-24 wpm	24 marks
25-26 wpm	26 marks
27 wpm	28 marks
28 wpm	29 marks
29 wpm	30 marks

KEYPAD RATE - Numbers 1-9:

80-83 kpm	5 marks
84-87 kpm	6 marks
88-91 kpm	7 marks
92-95 kpm	8 marks
96-97 kpm	9 marks
98 kpm	10 marks

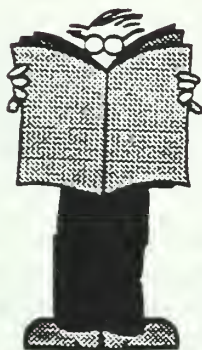
TECHNIQUE:

Touch keystroking (alpha and punct keys)	30	Yes	No
Function/Service keys (used appropriately	5	Yes	No
Posture appropriate	5	Yes	No

WORKSTATION:

Equipment Use	5	Yes	No
Software/Materials use	5	Yes	No
Time Management	5	Yes	No
Decision Making/Organization	5	Yes	No

TAKE THIS MODULE?



Word-processing software is used by people in all professions to create documents, and to communicate and transmit information all over the world using networked computer systems.

In this module you will:

- ☒ learn the basic commands and functions of a word-processing system (WordPerfect 6.0 for DOS).
- ☒ create simple reports, letters and tables for yourself; you will not have to rely on others .
- ☒ increase your efficiency in using the workstation equipment and resources.
- ☒ improve your ability to manages you time and resources efficiently.

These skills will be useful in your personal life as well as in other courses you are taking in school.

DO YOU NEED TO KNOW BEFORE YOU START?

This module requires that you can demonstrate the exit-level competencies defined in the following modules from the Information Processing strand:

INF101	Computer Operations
INF102	Keyboarding I



WILL YOU KNOW AND BE ABLE TO DO WHEN YOU FINISH?

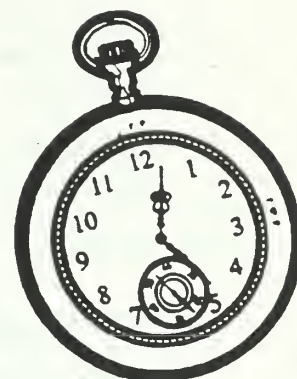
When you complete this module you will be able to:

- use the workstation efficiently, including:
 - ☒ start the computer and load the program
 - ☒ identify the parts of the screen
 - ☒ use the mouse and keyboard to make selections.
- demonstrate the ability to use the basic function key features of WordPerfect 6.0 for Dos, as follows:
 - ☒ create and edit documents
 - ☒ save, open and close documents
 - ☒ use the help feature
 - ☒ efficiently move within a document
 - ☒ apply text formatting, set margins, adjust linespacing, indent paragraphs
 - ☒ add automatic page numbering
 - ☒ insert page breaks, hard spaces and hard hyphens
 - ☒ prevent widows and orphans
 - ☒ use the bold, italics and underline features
 - ☒ set and adjust tabular columns
 - ☒ block, cut, copy and move text
 - ☒ undelete text
 - ☒ work with the Reveal Codes function
 - ☒ use different document formatting methods
 - ☒ proofread, use Spell Check, Thesaurus and Grammatik features
 - ☒ use search and replace features to search for and replace text and codes
 - ☒ use Zoom and Print Preview
 - ☒ print documents
 - ☒ understand file management and conventions
 - ☒ use the file manager feature to manage files
 - ☒ create quicklists.

SHOULD YOUR WORK BE DONE?

Use the timelines shown below to help you schedule your time. Prepare a workplan outlining when you will complete the tasks listed below. Submit this workplan to your instructor for approval. Remember, you should use your time and resources as efficiently as possible so that you can complete the module and move onto other opportunities to develop your skills and abilities. You may find that you need less time or more time than is indicated. If you need to adjust your workplan, be sure to consult your teacher.

- TASK 1: approximately 16 hours
- TASK 2: approximately 8 hours
- TASK 3: approximately 1 hour



WILL YOUR MARK FOR THIS MODULE BE DETERMINED?

	PERCENTAGE
To be successful in this module you will need to complete ALL the tasks defined below, meeting or exceeding the standards set for each task.	
TASK 1: WordPerfect 6.0 DOS functions - Instructor will review Disk/Printout, work will be approved/not approved (yes/no)	15
TASK 2: Worksheets, production of accurate, properly formatted copies of reports, letters and tables - Instructor will review Disk/Printout, work will be approved/not approved (yes/no)	15



TASK 3: TEST	
<input checked="" type="checkbox"/> 1 1/2 page report paginated with headings	10-20
<input checked="" type="checkbox"/> letter with basic components (return address/letterhead, date, inside address, salutation, body, closing, signers identification)	10-20
<input checked="" type="checkbox"/> two-column table with main and sub headings	10-20
You will also:	
<input checked="" type="checkbox"/> consistently apply appropriate workstation routines Yes/No; instructor will observe and complete a checklist	10
<input checked="" type="checkbox"/> demonstrate improvement as you manage your learning resources effectively and efficiently	basic competency checklist

WRITER

RESOURCES MAY YOU USE?



- ☒ WordPerfect 6.0 for DOS software.
- ☒ Mastertrax, The Learning Advantage, *WordPerfect for DOS Version 6.0, Manual 1870* (CCI Computer Courseware International).
- ☒ Ubelacker, Guest and McConaghy, *Mastering Keyboarding Skills 1* (second edition.)
- ☒ Handouts provided with this student guide.

TASK 1: Obtain the CCI *WordPerfect for Dos Version 6.0 Manual 1870* textbook. The textbook has a prepared data disk with documents that you will retrieve and work on when performing the exercises. With the assistance of your instructor, determine where these documents are located, and whether you will be copying them to your own prepared data disk, or using them from the fileserver. Be sure to save the revised documents to your own formatted data disk.

Complete all of the exercises in the manual, saving your work.

TASK 2: Additional information and worksheets are provided to develop skills in preparation of reports, letters and two-column tables. Complete all of the tasks outlined on the worksheets, referring to the textbook, Ubelacker, Guest and McConaghy *Mastering Keyboard Skills 1* (2nd Edition), and the information sheets for formatting instructions.

TASK 3: Complete the mastery level tests provided by your instructor.

APPLICATION EXERCISES

REPORTS

LETTERS

TABLES

NB: Read and follow the formatting instructions included with each set of instructions very carefully. Refer to the examples included in this package.

PRODUCTION EXERCISES -- REPORTS

TEXT: Mastering Keyboarding Skills 1, Ubelacker, Guest & McConaghy

NB: SPELL CHECK AND PROOFREAD EVERY DOCUMENT BEFORE SAVING

PAGE(S)	PROD. NO.	INSTRUCTIONS
250-251		<p>REPORT</p> <p>Ubelacker text, Page 246 -- SUMMARY OF EDITORS' MARKS (Proofreaders' Marks), read and refer to these editing marks whenever necessary.</p> <p>FORMATTING GUIDE for REPORTS - read and refer to the formatting instructions that follow in this manual and use these formatting guidelines for all reports.</p> <p>Line Length: Use the default settings (60 space line, Left and Right Margins 10).</p> <p>Header: Create a HEADER for each report that has the title of the report flush left and the pages automatically numbered flush right. Suppress the Header for the first page only.</p> <p>Place the CURSOR AT THE TOP OF THE FIRST PAGE then: Press Shift+F8, P, H, A, P, this will bring up the HEADER editing screen; Type the name of the report at the left margin, then press Alt+F6 to place the cursor at the right margin and type the word page leave one spacebar space, then hold down the Ctrl key and press the letter B, this will automatically number the pages starting with page one, then press Enter once to insert an extra blank line.</p> <p>Press F7 once, this will bring back the formatting menu, then type u for suppress (this page only); and then press 1 to suppress all headers, footers and page numbering for this page one. (The header is only visible in PRINT and VIEW) and the code case code is visible in reveal codes (F11).</p>

PAGE(S)	PROD. NO.	INSTRUCTIONS
250-251 cont'd		<p>Ⓜ Type the TITLE of the report in ALL CAPITAL LETTERS on Ln 7 on the first page by pressing Enter 6 times (this places your title on the first page of a report on line 13 or 2" from the top edge of the page)</p> <p>Ⓜ Triple Space (enter 3 times) after the title.</p> <p>Ⓜ Set for Double Spacing for the body of the report (Shift+F8, L, S, 2, F7)</p> <p>Ⓜ Use AUTOWRAP at the ends of the lines in the body of the report, do not press enter unless you are starting a new paragraph. TAB in once to have the first line of each new paragraph start 5 spaces in from the left margin.</p> <p>Ⓜ Pages will break automatically as they fill, page breaks show on the monitor as a single line of dashes. Start each new page on Ln 1, right below the soft page break line of dashes. This places your text 1" from the top edge of the paper, and leaves space for your Header to appear in the top margin.</p> <p>Ⓜ If you have a single line of text or a side heading that you want to have appear on the next page instead of at the bottom of the current page, a page break can be forced with CTRL+Enter -- represented by a double line of dashes</p> <ul style="list-style-type: none"> • Name and Save as R250.
290-291		<p>REPORT with a FOOTNOTE (Try something new -- FOOTNOTE FEATURE!)</p> <ul style="list-style-type: none"> • Use the WordPerfect FOOTNOTE feature (Ctrl+F7). • Refer to the formatting instructions for the above report (P250-251), and your formatting notes in this package. • Name and Save as R290

PRODUCTION EXERCISES -- LETTERS

Mastering Keyboarding Skills 1, Ubelacker, Guest & McConaghy

NB: SPELL CHECK AND PROOFREAD EVERY DOCUMENT BEFORE SAVING

PAGES	PROD. NO.	INSTRUCTIONS
173		<p>FULL BLOCKED FORMAL BUSINESS LETTERS WITH MIXED PUNCTUATION IN DISPLAY LINES</p> <ul style="list-style-type: none"> • Set your Left Margin at 15 spaces and your Right Margin at 15 spaces. • Press Enter enough times to place your cursor on Ln 9 (check your Ln #). This is the 15th line from the top of the page. • Use the DATE TEXT CODE to place the current date in your letter on line 9 (Shift+F5, T) • Enter 4-6 times after the Date and type in the mailing address (the name and address of the person the letter is going to) • Enter twice (double space) to the salutation. Type the salutation followed by a colon (:) do not leave any spaces between the last letter of the salutation and the colon.

PAGES	PROD. NO.	INSTRUCTIONS
173 cont'd		<ul style="list-style-type: none"> • Enter twice (double space) and type the body of the letter. Single space the body of the letter, use AUTOWRAP at the end of the lines (do not press enter); do NOT Tab the first line of each paragraph; press Enter twice (double space) to start a new paragraph • Enter twice (double space) to the Complimentary Closing. Type the closing, capitalizing only the first letter of the first word, eg: Yours truly, and follow with a comma. • Press Enter 4-6 times and type the Signature Block. • Press Enter twice and type YOUR INITIALS, you are the typist -- do not type the initials that are in the textbook. • Read all letters carefully, if there are any references to ENCLOSURES (or attachments), Enter twice after your initials, and type in the Enclosures notation. • Your letter should look similar to the sample you are typing on page 173, but the lines in the body of your letter may not be exactly the same because you are using AUTOWRAP! • Name and Save as L173
189	1	<p>FULL BLOCKED FORMAL BUSINESS LETTER WITH MIXED PUNCTUATION IN DISPLAY LINES</p> <ul style="list-style-type: none"> • Complete the letter following proper formatting rules • Name and Save as L189-1

PAGES	PROD. NO.	INSTRUCTIONS
201	2	<p>FULL BLOCKED FORMAL BUSINESS LETTER with ENUMERATIONS</p> <p>NB: This letter is not in proper letter format, and there are missing letter parts. Refer to page 200 for an example of a properly formatted letter.</p> <ul style="list-style-type: none"> Follow the formatting rules for FULL-BLOCKED letters with MIXED PUNCTUATION and formatting rules for ENUMERATIONS within the letter (setting a tab and using the INDENT key F4) Name and Save as B201-2
216	2	<p>FULL-BLOCKED FORMAL BUSINESS LETTER</p> <ul style="list-style-type: none"> Type this letter using proper format and including any missing letter parts. Read the letter carefully. Use your own initials and include any enclosure notations. Name and Save as B216-2

PRODUCTION EXERCISES -- TABLES

TEXT: Mastering Keyboarding Skills 1, Ubelacker, Guest & McConaghy

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PAGE(S)	PROD. NO.	INSTRUCTIONS
100	1	✓ NB: USE THE WORDPERFECT TABLES FEATURE FOR THE FOLLOWING EXERCISES ✓ CAPITALIZE all letters in the TITLE
120	1	✓ CENTER the headings over the columns
127	1	✓ CENTER the headings over the columns
130	1	✓ CENTER the headings over the columns, and SET A DECIMAL TAB for the COST column (which contains amounts of money)

EXAMPLES:

**REPORT
LETTER
TABLE**



FORMATTING GUIDE FOR REPORTS AND ESSAYS (TITLE Ln 7)
(one blank linespace)
General Instructions (subheading)
by Rhoda Cucheran
(two blank linespaces)

Header (sideheading)

The **FIRST CODE** that should appear in your reveal codes when you create a report is your **HEADER** code. Reports have **HEADERS** which are **SUPPRESSED** for the first page, and which contain the **TITLE** of the report typed at the **LEFT MARGIN** and the automatic **PAGE # (Page ^B) FLUSH RIGHT**. When you create a header, you are temporarily placed in a header editing screen. This is where you type the information that you want to appear in your header, the **TITLE (left flush, all capital letters)**, and the **automatic page numbering code (Page ^B)**. Press **ENTER ONCE** after typing in the page code in order to create a larger space for your header.

Suppressing headers for the first page

EXIT (F7) back to the Page Format Menu in order to **SUPPRESS** the header for the first page. You "suppress" (do not have it print) your header because you do not want both a header and a title on the first page. The choice you make from the suppress header menu is usually the first one, to suppress all headers, footers and page numbers. Even though you suppress the header for the first page the second page will automatically be numbered Page 2.

Report Title

(sideheading)

The **TITLE** of the report is typed in **ALL CAPITAL LETTERS**, and centered on the first page at **Ln 7** on the monitor Line indicator. If you have a subtitle, double space (leave one blank linespace) between the title and the subtitle. **TRIPLE SPACE** down to the body of the report.

Body of the Report - Linespacing

Before starting to type the **BODY** of your report, **set your linespacing to 2 (for double spacing)**. You will see instructions in typing books that require you to triple space before sideheadings and double space the rest of the report. You have a choice--you may switch back and forth between triple and double spacing, or you may triple space after the title and double space the balance of the report.

Body of the Report - Margins

The **LEFT AND RIGHT MARGINS** are the default settings of **10 Left and 10 Right**. The first line on page 2 of the report, and on all subsequent pages, is typed at **Ln 1** on the monitor line indicator. Autowrap

Use **AUTOWRAP**, that is, as you type the body of your report let the words wrap at the right margin. Autowrap is indicated by the [SRt] code in **REVEAL CODES**. Only press enter when you want to start a new paragraph, enter is represented in reveal codes as [HRT]. Paragraphs are tabbed in 5 spaces.

Page Breaks

WordPerfect inserts page breaks automatically as the pages are filled. Reveal codes displays automatic page breaks as [SPg]. These page breaks are displayed on the edit screen as single lines of dashes. If you choose to force a page break, you can press **CRTL+Enter**, which puts the code [HPg] in your reveal codes.

The **BOTTOM MARGIN** should remain set at 6 linespaces (1") for all pages. Text will automatically adjust to fit the pages.

Quotations and Special Displays

Single space all special displays, such as subheadings that take two lines, footnotes, enumerations or listings. Single quotations are placed in quotes (") within the double spaced text, as shown here. " This is a very short quotation. It has three or fewer short lines and is built right into the double spaces text. Quotation marks are placed at the beginning and end of the quote."¹ Long quotations should be single spaced and indented 5 spaces from both margins, as follows:

This is a longer quotation (let's pretend). In order to get it to **INDENT 5 spaces from BOTH margins, press Shift+F4**. The quotation will automatically wrap in five spaces from both the left and the right margins. This type of quotation does not have quotation marks around it.²

¹Abernethy, John, Quotations for Reports, Ramdon House, 1929, p.234

²ibid, p.432

Enumerations

Use the **INDENT (F4)** key for enumerations, and set the tab for Absolute 14, this places your indented text 4 spaces in from the left margin.

1. This is an enumeration. The number appears at the left margin and the text starts in 4 spaces from the left margin. The enumeration is single spaced. If you have more than one enumeration, double space (leave one blank linespace) between them.
2. Like this.

Footnotes

When creating a report, references are made to other textbooks, articles, etc., and these have to be acknowledged. At the end of a quotation, or a reference, you create a **FOOTNOTE** by pressing (**Ctrl+F7**), **F (footnote)**, **C (create)**. This puts a footnote number in your document and also the same number in a footnote editing screen in which you enter the author, name of reference book or article, publisher and page number as well as any other information for the reference. When you have finished entering the footnote information, press **F7** to go back to your document.

You will see a footnote number, but no footnote unless you REVEAL YOUR CODES, at which time you will see the "NOTE" at the "FOOT" of the page--thus the name "FOOTNOTE".³ I have created this footnote as an example (you won't find the book).

The nice thing about the footnote feature is that if you

³Cucheran, Rhoda, FOOTNOTES ARE FUN, CEC Publishing company, 1994, p.2000

change your report and the footnote reference ends up on a different page, the footnote follow and appears on the same page automatically. If you have several footnotes in your document, they will automatically increase in number. If you delete one of them, they will be automatically renumbered.

Tab/Indent Keys

BEWARE of the differences between the terminology **TAB** and **INDENT (F4)**. Textbooks often refer to "indenting" five spaces when in fact they want you to **TAB** in five spaces.

Pressing TAB places your cursor at an advanced **Position** horizontally for the first line only, the balance of the lines wrap back to the original left margin.

Press **TAB** once at the beginning of each new paragraph to start the first line of text 5 spaces in from the left margin, and to leave the balance of the text at the default left and right margins.

Pressing INDENT (F4), will place a new temporary left margin at the position indented to, and all lines will wrap to this new left margin until you press the **ENTER** key. Text will then again start at the original left margin.

Use the **INDENT (F4 and Shift F4)** key for quotations and enumerations.

Base Font

Word processing programs have different **FONTS** (type size and appearance) available. The default font is usually **10 pitch (pica)**, that is, it creates 10 letter spaces per horizontal inch.

eg:

This is Courier 12 pitch.

This is 14 point.

ωϑκ, κ, θη, ῚῚςῚύςῚζ (this is Greek,
20 point printed on LASERJET 4mp)

If you want to get more text on fewer pages, you may want to change your **BASE FONT** selection to **12 pitch (elite)**, that is, create 12 letter spaces per horizontal inch.

If you want to place emphasis on a word, phrase, sentence or paragraph, you may choose to use another style of font, or choose **italic** from the font appearance menu.

Title Page

Information on the title page should be displayed attractively,⁴ usually **centered on the page**. It should contain the **name of the report** or essay (in all uppercase -- capital letters), the **name of the writer**, and the **date the report was typed**, with this information usually being double spaced, and a **HARD PAGE BREAK (CTRL+ENTER)** placed, at the end of the last line on the title page.

BE CREATIVE!!! For effect, you may want to use the **BOLD** or **UNDERLINE** features; change the **FONT SIZE** to large, or use other special features such as **GRAPHICS** which are available to you through your word processing program.

⁴Ibid., p.276.

Example:

(BUSINESS LETTER LETTERHEAD)

(Left and Right MARGINS are set at 15)

January 21, 1994

(DATE LINE is on Ln 9)

(4-6 blank lines between
the DATE and INSIDE ADDRESS)

Ms. Renata Jacot
5703 Dalton Drive N. W.
Calgary, Alberta
T3A 1C4

(INSIDE ADDRESS includes
the name and the address
of the person the letter
is going to.)

(one blank linespace)

Dear Ms. Jacot:

(SALUTATION)

(one blank linespace)

In response to your recent request, we are pleased to send you a
copy of our article entitled "Exterior Painting, The Quick Home
Remedy".

(BODY of LETTER)

(one blank linespace)

Our Group Merchandising Department prepared this article for
consumers. It contains many helpful suggestions on choosing the
right paint and tools for the job, preparing the surface to be
painted, etc.

(one blank linespace)

Please do not hesitate to call your local Beaver store, or to write
our Group Merchandising Department at the above address if you
require additional information.

(one blank linespace)

Yours very truly,

(COMPLIMENTARY CLOSING)

(4-5 blank linespaces for
handwritten signature)

(SIGNATURE BLOCK)

Dianne C. Warnick
Press Officer

Name and title of person
sending the letter)

(one blank linespace)

rc

(INITIALS of typist -- your initials)

(one blank linespace)

Enclosure

(include an ENCLOSURE NOTATION
at the very end of the letter,
after the initials, if there is
reference within the text of the
letter indicating that there is an
enclosure -- an invoice, check,
catalogue, etc.)

TABLE Example:

SIDEWALK SALES SPECIALS

<u>Store</u>	<u>Special</u>	<u>Price</u>
Woodwards	Braun Silencio Dryer	\$ 25.99
The Bay	Sony Walkman WM-F46	129.88
Shoppers Drug Mart	Magnetic Photo Album	4.77
Pet Fair	Cockatiels	59.80
Hakim Optical	Foster Grant sunglasses	12.00
Sears	Canon SolarCalc	24.66

ASSESSMENT CHARTS

KEYBOARDING RATE - Alphabetic:

20 wpm	20 marks
21-22 wpm	22 marks
23-24 wpm	24 marks
25-26 wpm	26 marks
27 wpm	28 marks
28 wpm	29 marks
29 wpm	30 marks

KEYPAD RATE - Numbers 1-9:

80-83 kpm	5 marks
84-87 kpm	6 marks
88-91 kpm	7 marks
92-95 kpm	8 marks
96-97 kpm	9 marks
98 kpm	10 marks

TECHNIQUE:

Touch keystroking (alpha and punct keys)	30	Yes	No
Function/Service keys (used appropriately	5	Yes	No
Posture appropriate	5	Yes	No

WORKSTATION:

Equipment Use	5	Yes	No
Software/Materials use	5	Yes	No
Time Management	5	Yes	No
Decision Making/Organization	5	Yes	No

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